AMATEUR RADIO

JANUARY, 1957

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3535 Kc.	5892.5 Kc.	7032.6 Kc.	7120 Kc.	8022 Kc.
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4285 Kc.	6850 Kc.	7040 Kc.	7125 Kc.	8176.923 Kc.
4495 Kc.	7004 Kc.	7042.65 Kc.	7126 Kc.	8183.5 Kc.
4535 Kc.	7005 Kc.	7045 Kc.	7130 Kc.	8317.2 Kc.
4540 Kc.	7010 Kc.	7047 Kc.	7134 Kc.	8320 Kc.
5000 Kc.	7010.7 Kc.	7050 Kc.	7140 Kc.	10.511 Mc.
5050 Kc.	7011.5 Kc.	7053.5 Kc.	7145 Kc.	10.524 Mc.
5300 Kc.	7011.75 Kc.	7063 Kc.	7150 Kc.	10.530 Mc.
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All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

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VK9WI: Sundays, 1000 hours EST, simultaneously on 3.5, 7, 14 and 144 Mc. Individual frequency checks of Amateur Stations given when VK9WI is on the air.

AMATEUR RADIO

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Melbourne, C.1.

EDITORIAL

★

"THE MOVING FINGER"

"The Moving Finger writes; and, having writ,
Moves on: nor all thy Piety nor Wit
Shall lure it back to cancel half a line,
Nor all thy Tears wash out a Word of it."

Rubaiyat of Omar Khayyam.

Hardly have the joyous sounds of Christmas faded into silence than mankind hears the bells toll in the New Year. The years of our earth have increased by one and Time has closed the door on another gamut of days. The year has become the past.

Looking back we see our attainments, our defeats; looking forward we see—What? Our future hopes, perhaps fears. And what does the future hold for our—yes OUR—Institute.

Let us consider. One of our great opportunities in the coming year is active participation in the great International scientific undertaking of the Geophysical Year. Here is the vision splendid of co-operation towards a single goal and we—the Institute—are in the position to be active workers in the field.

And then the Convention. The time when we can air our problems around the table in friendly discussion. This may seem to be the affair of the few, but it is definitely not. The items discussed are those of individual members supported by the Division, finally carried to Federal level.

So much for some of our hopes; what of our fears? We must face Television interference. The problem is small at the moment. Television is in its infancy and Amateurs have prepared for most eventualities, but it must be expected that some difficulties will arise. We must not allow these to defeat us.

We must also face the problems surrounding Civil Defence. It may be necessary to make some sacrifices in order that we can play our part should unforeseen circumstances arise.

Thus enters 1957 and with the beginning of this New Year, WE—the Institute—can confidently look to the future.

FEDERAL EXECUTIVE.

THE CONTENTS

Design Notes on Transistorised Audio Amplifiers

HANS J. ALBRECHT,* VK3AHH

WHILE more than sufficient literature seems to be available on how to conduct cut-and-try experiments with transistors, it is generally difficult to obtain information on the proper engineering approach in designing transistorised amplifiers. It will therefore be attempted, in this article, to deal with special design aspects encountered with such amplifiers, based on transistor-network analysis and on the experience the author was able to gain in this field during the last few years.

To be useful, this article cannot cover the very fundamental information on transistors, and readers requiring such an introduction are referred to relevant books, booklets, articles, manufacturers' advertisements, etc., too numerous to list. An introduction of higher standard may be found in the two books mentioned as references.[1, 2]

Similar to vacuum-tube technique, it is essential to operate a transistor within its power ratings and, for best results, within the linear portion of its characteristics. An additional requirement is the stabilisation of the amplifier circuitry, to keep the effects of ambient temperature within permissible limits.

Three circuit connections are possible:

(i) **Common-emitter connection**; useful for amplification; input and output resistances are of the order of 1,000 and 70,000 ohms, respectively; counterpart to grounded-cathode operation.

(ii) **Common-base connection**; useful for amplification; input and output resistances are of the order of 100 to 500 ohms and 200,000 ohms, respectively; counterpart to grounded-grid operation.

(iii) **Common-collector connection**; mainly used for matching a high impedance to a low impedance load; input and output resistances are of the order of 100,000 and 2,000 ohms, respectively; counterpart to cathode-follower operation.

For an RC-coupled or direct-coupled cascade amplifier common-emitter or common-base stages or a combination of both may be utilised. The use of a common-collector stage as matching stage between the amplifying stages is feasible, although no advantage can be obtained in practice. In fact, it has been found that a cascade of three common-emitter stages results in more amplification than that of two common-emitter stages isolated and mutually matched by a common-collector stage.

If transformers are used as means of coupling one stage to the other, they must be so designed that an appropriate matching of the output resistance of one stage to the input resistance of the next stage is achieved.

Considering the loss in gain due to the mismatch from stage to stage in an RC-coupled or direct-coupled cascade amplifier and thus the necessity of an additional stage to compensate for the loss, transformer coupling is advantageous if a minimum number of stages is a main objective. However, it must be pointed out that the use of more than one or two transformers is not advisable in a cascade amplifier because of the obvious tendency towards oscillation, similar to vacuum-tube technique. Furthermore, appropriate midget transformers may be relatively expensive.

* 10 Belgravia Ave., Box Hill North, Vic.

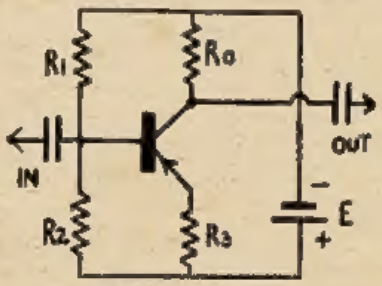
DESIGN CALCULATIONS

As indicated above, the circuit components must be so chosen that the quiescent operating point is within the straight part of the characteristics and that changes in the ambient temperature, are automatically compensated.

To achieve this aim, the circuit may be arranged in several ways, to some extent depending on whether one or more separate supply sources are used. For various reasons the single-source circuit results in a simpler circuit, although the actual design may appear to be more complicated.

The figure depicts an amplifier stage in common-emitter connection with appropriate bias stabilisation. Fundamentally, the emitter current (I_e) may be regarded as being split up into collector (I_c) and base (Ib) currents, thus

$$I_e = Ib + I_c \quad \ldots\ldots\ldots\ldots (1)$$



Also, the collector current consists of the emitter current multiplied by the current amplification factor (a) plus the collector current at zero emitter current (I_{co}). "a" is defined by the derivative of the collector current with respect to the emitter current, with the collector voltage kept constant.

We have

$$I_c = aI_e + I_{co} \quad \ldots\ldots\ldots\ldots (2)$$

Referring to the figure and designating the current through R_1 by I_1, and that through R_2 by I_2, the base current is given by

$$Ib = I_2 - I_1 \quad \ldots\ldots\ldots\ldots (3)$$

And, neglecting the small potential between the emitter and the base,

$$I_2R_2 = I_1R_1 = E - I_1R_1 \quad \ldots\ldots (4)$$

E being the supply voltage.

We can now proceed to discussing the actual design of the stabilising circuit, based on the above formulae. A so-called stability factor has been defined for transistorised amplifier circuits.[1] Mathematically, this factor "S" is the derivative of the collector current with respect to the zero-emitter collector current:

$$S = \frac{dI_c}{dI_{co}} = \frac{1 + R_2/R_3 + R_2/R_1}{1 - a + R_2/R_3 + R_2/R_1} \quad \ldots\ldots\ldots (5)$$

Particularly the zero-emitter collector current (I_{co}) is subject to changes with temperature. Fluctuations in I_{co} appear in the collector current I_c multiplied by S. The value of this factor should be as low as possible for optimum circuit stabilisation. In practice, however, a compromise must be made between economical current consumption and a low value of "S", which means relatively large current drain. For audio amplifiers a factor S = 2 would give very good stabilisation. Nevertheless, one of the greatest advantages of using transistors is their enormously low current consumption and, consequently, the relatively large practical efficiency. This feature should not be jeopardised under any circumstances. The author found, by several designs, that a stability factor of six to nine is still acceptable for audio amplifiers. This value results in very low current consumption at reasonable and sufficient stabilisation.

The next step in designing an RC-coupled audio amplifier stage with single-battery supply is the calculation of each of the resistors R_2, R_1, and R_3. From expressions mentioned above, the following formulae may be derived:

$$R_1 = \frac{E\ (S - 1)}{I_c - SI_{co}} \quad \ldots\ldots\ldots (6)$$

$$R_2 = \frac{S - 1}{\frac{(1 - S + aS)\ (I_c - I_{co})}{a\ (E - V_c - R_2I_c)} - \frac{I_c - SI_{co}}{E}} \quad \ldots\ldots\ldots (7)$$

$$R_3 = \frac{a\ (E - V_c - R_2I_c)}{I_c - I_{co}} \quad \ldots\ldots\ldots (8)$$

where

V_c = collector voltage } at operating point
I_c = collector current }
R_2 = load resistance

In a typical stage, a junction triode OC71 is used in common-emitter connection with R_1 = 47,000 ohms, R_2 = 10,000 ohms, R_c = 3,900 ohms, and R_3 = 1,000 ohms, the supply voltage E being 4.5 volts. This is one stage of a fully-transistorised amplifier designed by the author early in 1956 and used as modulation amplifier at his station.

To illustrate the change of components if a different type of junction-triode transistor is utilised, details of another RC-coupled stage of the cascade amplifier just mentioned are given below. This stage contains an OC72 (ratings higher than those of the OC71, and cut-off frequency substantially lower but above the audio range) in common-emitter connection. R_1 = 18,000 ohms, R_2 = 4,700 ohms, R_3 = 1,000 ohms, and R_3 = 470 ohms; E being 4.5 volts.

To arrive at these values design steps can be recommended as follows:

(i) Select the type of transistor and consult the manufacturer's publication of characteristics for values of "a" and "I_{co}".

(ii) Choose the mode of operation, load resistance R_o, and a suitable quiescent operating point from the characteristics published, defined by I_c and V_c at the operating point.

(iii) Select a value for the stability factor "S".

(iv) Substitute "a", "I_c", "I_{co}", "V_c", "R_o", and "S" in eqs. (6), (7), and (8) and thus determine values of R_1, R_2 and R_3.

Table 1 shows typical values of the quiescent operating points for two transistors available on the Australian market, namely P-N-P junction triodes OC71 and OC72, both operated in common-emitter connection class A. "a" is 0.98 for both types.

Typical data for quiescent operating point	OC71	OC72	
—E supply voltage	4.5	4.5	volts
—V_c collector voltage	0.91	1.8	volts
—I_c collector current	0.73	1.82	Ma.
R_o	3,900	1,000	ohms

Table 1.

Similar to the cathode resistor in vacuum-tube technique, R_3 has to be by-passed by an appropriate capacitance in order to keep the impedance in the emitter circuit at a negligible level for the audio frequencies used. Values of 10 to 200 uF. are practicable. This capacitor, as well as the coupling capacitor which is of the order of 1 to 10 uF. (because of the generally lower impedances in transistor technique), may be varied according to the frequency compression desired.

The "h"-parameters which are published by manufacturers may be used to obtain approximate data on gain, optimum load impedance, etc. In fact, these "h"-parameters are the elements of the h-matrix of a transistor stage regarded as a four-terminal network. A set of formulae can be derived on that basis but only four of the most useful ones are mentioned here:

For common-base connection:

$$\text{Voltage gain} = \frac{|\ h_{21}\ |}{D + h_{11}/R_o} \quad \ldots\ldots (9)$$

$$\text{optimum load impedance} = \sqrt{h_{11}/(D \times h_{22})} \quad \ldots\ldots \ldots\ldots (10)$$

For common-emitter connection:

$$\text{voltage gain} = -\frac{|\ h_{21}\ |}{D + h_{11}/R_o} \quad \ldots\ldots (11)$$

$$\text{optimum load impedance} = \sqrt{h_{11}\ (1 + h_{21})/(D \times h_{22})} \quad \ldots\ldots \ldots\ldots (12)$$

$$D = h_{11}\ h_{22} - h_{12}\ h_{21}$$

The design of cascade transistor amplifiers of several stages is relatively difficult if compared with corresponding calculations in vacuum-tube technique. Whereas stage-by-stage computation is the usual method in the latter case, this method cannot be recommended for transistor cascades. The main reason is that the input resistance of a transistor stage is so low that it actually governs the load resistance of the preceding stage, and so on. In practice, the load at the final output stage will be found to influence the input resistance of the first stage of the cascade. A far more reasonable approach is the use of matrices, and, as far as the author is concerned, no other method appears to be so well representative of the special features of transistor circuits. It may be added, for readers trained in this field of higher mathematics, that the h-matrix of each stage is best transformed into a cascade matrix which may then be solved for the entire cascade. This yields the overall matrix from which the overall relationships of input to output impedances, etc., can be determined.

The author designed his fully-transistorised modulation amplifier on this basis. The cascade amplifier consists of one OC71 stage and two OC72 stages, all RC-coupled and operated in class A. Details of this amplifier and its design are to be published elsewhere. However, some comments on its performance may be of interest.

At an overall current consumption of 3 to 5 Ma. at 4.5 volts, the three-stage amplifier is an economical and reliable unit. A crystal microphone is matched to the amplifier input by a special transistor matching stage (using an OC71, no amplification). The output of the amplifier is transformer-coupled to the grid of a clamp-tube which acts upon the screen-grids of the two 807s used in the final of the transmitter, because transistors available in this country can only be used for low-level applications. The gain of the amplifier is more than sufficient for adequate modulation and appreciable volume reserve. Combined with a transistorised audio oscillator for m.c.w. modulation, the small unit is extremely useful and versatile.

REFERENCES

1. Richard F. Shea, et al., Principles of Transistor Circuits, Wiley (1953).
2. Frederick E. Terman, Electronic and Radio Engineering, McGraw-Hill (1955).

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BOOK REVIEW

"HI-FI FROM MICROPHONE TO EAR"

By G. Slot

This is another publication (180 pages of 5¾" x 8¼") from Philips Technical Library written to meet the needs of music lovers seeking to improve the quality of reproduction from their equipment, by providing a complete survey for the non-technical reader of the technique of sound recording and reproduction.

(Continued on Page 7)

— . . . —

NEW SLANT ON TV AERIALS!!

Armed with the details of element lengths, etc., to construct a TV antenna, Les VK2AOR approached a local shop which sold, among other things, TV antennae, for information on the possibility, or otherwise, of obtaining some duralumin tubing.

The shop assistant enquired the reason for wanting dural tubing and Les, seeing a TV antenna strung from the roof, pointed up and said he wanted to make one of those aerials. Les was informed, most respectfully, that it would be almost impossible for him to successfully build a TV aerial because the elements of such aerials are filled with an electrolyte, a resonant gas, and that is why the ends of all the elements are sealed flat to keep the electrolyte inside. Les staggered speechless from the shop and is now firmly convinced that if the TV antenna he has constructed does not perform as expected it is because it has no resonant gas in the elements.

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DIAGNOSIS OF TVI*

A SYSTEM OF LOCATING THE CAUSE OF INTERFERENCE

BY R. H. HAMMANS, G2IG

• This article will not tell you how to cure television interference but it does describe a deductive system of investigation which will help to find the cause of TVI in any particular case. Once that has been done, well-known principles which have been described in these pages many times in the past may be applied.

BEFORE TVI can be cured, an intelligent system of tracing and diagnosis by means of available evidence is highly desirable. In this article it is intended to systematise the complex business of ascertaining the cause rather than to offer means of effecting a cure.

This conception of tracking down interference to its final elimination is based on a series of "go" or "no go" trials, leading, according to the results, down a chain of observations and tests which will provide an answer which should be conclusive. A chart or "tree" is given for rapid reference and to show more clearly than the text the logical sequence of the method.

TYPES OF INTERFERENCE

There are three categories of television interference caused by Amateur transmitters:—

(a) Harmonic or spurious radiation from the transmitter and/or its aerial system.
(b) Response by the television receiver to signals outside its design pass-band.
(c) The generation of harmonics in non-linear elements in the vicinity of the transmitter which re-radiate and enter the receiver in the same manner as if they were radiated from the transmitting aerial.

Cases in category (a) must obviously be treated at the transmitter and the Amateur cannot escape responsibility. Those in category (b) can only be cured at the receiver and in general the G.P.O. is sympathetic towards the principle that the Amateur is not to blame. In category (c) neither the transmitting Amateur nor the receiver owner is to blame except in so far that either the Amateur or the receiver owner may have somewhere about his property metalwork which, due to corrosion or other form of bad contact, is producing the trouble. A corroded receiving aerial of course comes into category (c) and the owner has the cure in his own province.

Category (a) Causes which must be dealt with at the Amateur Transmitting Station

The system to be adopted in this case is as follows:—

1.—Connect the transmitter to a dummy load. Operate the transmitter in all other respects in the same manner as that used when interference is known to be caused.

Possible Results:

(i) Interference no longer caused.
(ii) No change in interference.
(iii) Appreciable reduction of interference.

If the results are as in (i) then it is clear that all the trouble is brought about by the signal radiated from the transmitting aerial. It may, therefore, be due to harmonic radiation, to receiver defects in category (b) or to effects in category (c).

If the results are as in (ii) there is strong evidence of harmonic radiation from the early or final stages of the transmitter and well-known methods of cure, such as screening, filtering of leads, etc., should be applied. It is unlikely that the receiver is to blame or that non-linear elements are involved since there should be no swamping signal, as would be the case if the transmitting aerial, instead of the dummy, were in use.

If the results are as in (iii) there is every likelihood of a combination of harmonic radiation from the transmitter itself as in (ii) plus further interference falling into categories (a), (b) and (c). The procedure, therefore, is to work on the transmitter screening and filtering, etc., until interference is eliminated on dummy load.

2.—When all interference on dummy load has been cured, the following test should be carried out. Reconnect the aerial to the transmitter through a low-pass filter of good or known performance.

Possible Results:

(i) Interference no longer caused.
(ii) No change in interference.
(iii) Appreciable reduction of interference.

If the results are as in (i) this is the end of this particular branch of investigation and the case is closed. However, if the results are as in (ii) there is strong evidence that the transmitter was blameless even without the low-pass filter and that the case falls into either category (b) or category (c) or both.

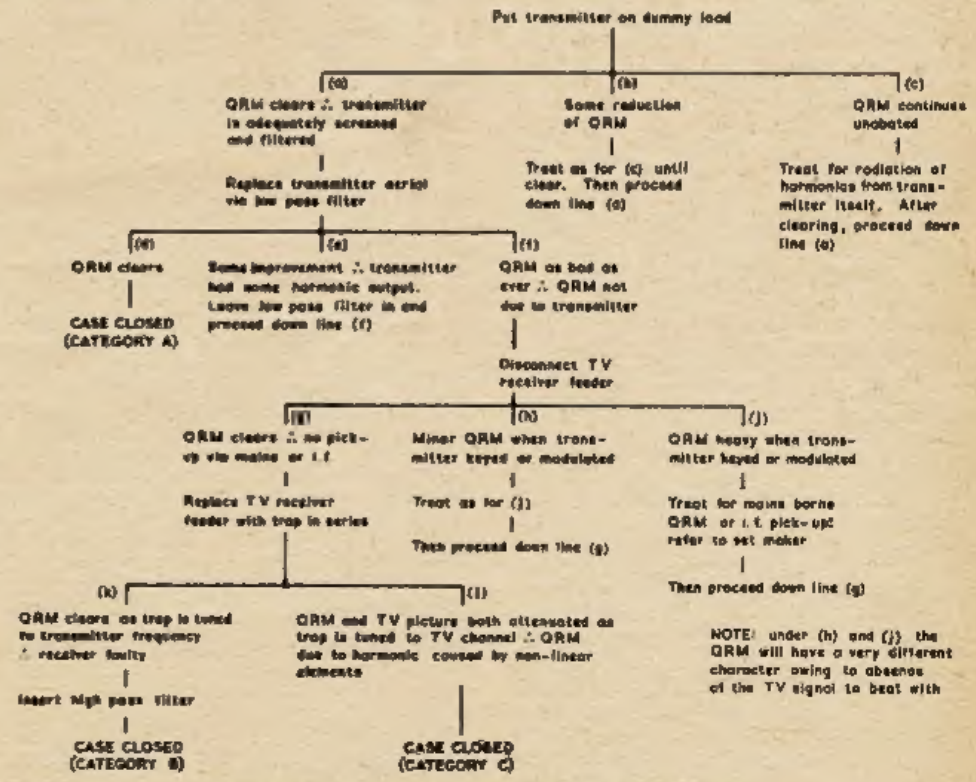
If the results are as in (iii) the transmitting station with the low-pass filter in circuit is probably now blameless and the remaining interference is due to causes in categories (b) or (c) or both. It is, of course, necessary to make sure the low-pass filter is really effective before these assumptions can be true.

At this stage of the investigation the transmitting station and, therefore, category (a) have been eliminated and only categories (b) and (c) remain.

Category (b) Causes which must be dealt with at the Receiving Station

3.—The system to be adopted in this case is as follows:—

Disconnect the receiver aerial and turn up the brilliance control until the



The chart devised by the author for the rapid diagnosis of television interference.

* Reprinted from R.S.G.B. "Bulletin", June, '56.

raster is just visible. Modulate the transmitter by speech or keying and check whether interference persists.

Possible Results:

(i) No interference visible.
(ii) Significant interference still present.

If the results are as in (i) then the interference is coming in via the aerial and the frequency of the interfering signal should be checked. This is best done by means of a tuned trap or traps which will cover the fundamental and appropriate harmonic frequencies of the Amateur signal (see section 4 following). If the results are as in (ii), then at least some interference is entering the receiver via the mains connection or is being picked up on the i.f. wiring in the receiver. Apart from putting r.f. chokes in the mains lead and trying elementary screening around obviously vulnerable i.f. circuitry there is not much that can be done by anyone but the set manufacturer.

4.—Reverting to section 3 (i)—the case where on removal of the receiver aerial no trace of interference is to be seen when the transmitter is keyed—the following tests should be carried out.

Insert a parallel tuned circuit, resonant at the transmitter output frequency, in series with the inner conductor of the receiver co-axial feeder. For 14 Mc. the tuned circuit should preferably cover at least a 3 : 1 frequency band so that at one sweep of the tuning condenser both transmitter fundamental and third harmonic can be rejected. For lower frequency bands the tuned circuit need only resonate at the transmitter output frequency but a second tuned circuit should be available to cover the television band.

With the transmitter keyed or modulated, and the television transmission on the air (preferably with test card C), rotate the trap condenser in the vicinity of the known resonance point for the transmitter frequency as determined with a grid dip meter.

(i) If a substantial reduction in interference is observed, then the trouble is either swamping (cross modulation) or i.f. break-through or image response. Which it is can usually be deduced from a knowledge of the receiver circuit, but it is of academic interest only since the receiver is at fault anyway.

When it is found that a trap resonant at the transmitter output frequency is effective in reducing interference, a properly designed high-pass filter of known performance should be inserted in the receiver feeder. Any remaining interference is probably due to causes in category (c).

(ii) If no appreciable reduction is observed on tuning the trap to the transmitter output frequency, the evidence is that the receiver is not at fault. Retune the trap—or insert a second trap—to the television channel. Clearly, if the trap is operating effectively, it will seriously attenuate the picture. If the interference is due to a transmitter emission (such as a harmonic or spurious signal) or to a category (c) source, then the trap will attenuate the interference to the same extent as the picture. In earlier tests it has already been established that there is no transmitter output in the television band. Therefore, we have the case of a harmonic free transmitter and a faultless receiver, yet harmonics are being received. From this it may be deduced that the cause is in category (c) and sheer dogged searching or inspired deduction are needed to find it and attempt a cure.

Category (c). Harmonics caused by Non-Linear Elements

The process by which non-linear elements cause harmonic radiation is akin to that on which metal rectifiers and semi-conductor rectifiers rely for their operation. Generally, any substantial lengths or areas of metal which make partial contact with one another will, by virtue of the existence of oxides and other substances due to tarnishing, behave like an aerial system having a detector at the centre or somewhere along its length. The metal will pick up large currents due to the strong r.f. field in the locality of the transmitter and these currents flowing through the rectifier will be of greater magnitude in one half-cycle than in the other. Thus a sine wave containing no harmonics will be converted into a wave of the same frequency but having an unpredictable and sometimes serious harmonic content. The metalwork, by the theory of reciprocity, re-radiates the original signal plus the harmonics it has itself generated.

The commonest causes are rusty joints in domestic plumbing such as gutters, drain pipes, gas pipes and electrical wiring conduit. Indeed, the phenomenon has been called for many years the "drain pipe effect" or "rusty bolt effect"—the latter, particularly in sea-going installations where an earth bolt has rusted, giving rise to the conditions described. More often than not the efficiency of the rectifier in the corroded joint is very poor and the proportion of harmonic re-radiated to the amount of the fundamental re-radiated is very low, but it must be realised that a field strength of many volts per metre at the fundamental is common in the immediate vicinity of the transmitting station, and a re-radiated harmonic field of 1/1,000,000 compared with the fundamental may be sufficient to cause TVI.

Occasionally, however, the nature and condition of a dusty joint may be such as to rectify quite efficiently, with the result that any modulation of the transmitter may become audible at the joint! At the writer's station, for example, a gutter pipe 20 ft. high and having a loose-fitting joint about 5 ft. from the ground was found to be emitting an audible tone when the transmitter was being modulated for test purposes. On disturbing the joint by vigorously shaking the pipe, the sound output vanished, but there was still a varying degree of harmonic radiation (as detected on a harmonic indicator) as the pipe was moved about.

Some of the most obscure causes, which are at the same time most difficult to cure, are rusty conduit pipes embedded in the plaster of walls. The only hope of tracing these is by means of a sensitive harmonic indicator, preferably in the form of a portable two r.f. stage battery-operated receiver working at the harmonic frequency and having a tuned loop aerial. The transmitter should be modulated and operated at full power while the portable receiver is taken around the neighbourhood exploring for the points of origin and maximum harmonic indication. The tuned loop aerial will be found quite directional enough to pin-point even hidden conductors in walls and under floors.

After the source has been located it may be an altogether more difficult problem to eliminate the generation of harmonics. In the writer's house there are probably a dozen different instances of this effect, all of which are embedded in the plaster or underneath tongued-and-grooved flooring boards. One of the most disheartening things about this particular trouble is that houses immediately either side may also contain rusty connections which in most cases cannot be dealt with.

FURTHER AIDS TO DIAGNOSIS

One of the commonest forms of TVI is the diagonal "cross hatch" pattern formed on the picture. By observing and measuring the **horizontal** spacing of the light and dark bars it is possible to deduce the interfering frequency. For example, suppose the horizontal pitch of the pattern so formed is 0.25 in. on a screen 10 in. wide; then there will obviously be 40 complete cycles of the interference "beat" (or heterodyne) occurring in the 80 microseconds of active line duration of the television picture. If 40 cycles take 80 microseconds, then 1 cycle takes 2 microseconds and the frequency is 0.5 Mc. Similarly, a heterodyne of 2 Mc. would be represented by a horizontal pitch of one-quarter of 0.25 in., i.e., 1/16 in.

If the transmitter is on a frequency of, say, 14.333 Mc., its third harmonic will be exactly 43 Mc., and this harmonic will beat with the vision carrier of the London B.B.C. station on 45 Mc. to produce a heterodyne of 2 Mc. Thus, if the interference is due to the third harmonic, a 1/16 in. horizontal pitch pattern will be produced on a 10 in. wide screen (or, of course, 3/32 in. on a 15 in. screen).

Changing the transmitter frequency to exactly 14 Mc. will produce a 3 Mc. heterodyne and the pitch should reduce in width to two-thirds of the previous measurement.

The pattern will not usually be stationary because the television waveform is locked to the a.c. mains, which are not highly stable in r.f. terms. However, a quick inspection along one line of the raster will enable a fairly accurate pitch measurement to be made even if the pattern is moving quite rapidly. Any pattern having a pitch detectable larger than 1/16 in. on a 10 in. wide picture (in the case of 14 Mc. and Channel 1 for example) is indicative of a lower frequency heterodyne than 2 Mc. Such should be impossible if the trouble is really third harmonic since the transmitter would have to operate outside the high frequency end of the 14 Mc. band to produce any heterodyne appreciably lower than 2 Mc.

On the other hand, if the trouble is due to i.f. break-through or image response in the receiver, heterodynes of this order can be caused. Furthermore, due to "inversion" produced by the mixing process in the receiver, it is possible to increase the pattern pitch instead of reducing it when the transmitter is changed from 14.333 Mc. to 14 Mc.

Details of a Simple Mobile Whip for 40-80 Mx

BY FRANK W. FOWLER,* VK2APF

THIS simple whip has been devised for operation on 40 and 80 metres, for v.f.o. controlled pi output transmitters. It is not proposed to go into full technical details of the operation of the whip, but a few comments may be in order.

The writer has spent many hours trying to evolve something simple that, at the same time, will give reasonably good results on two bands. Let it be stressed that this whip is not the acme of perfection, but it works and is the answer for v.f.o. operation.

It was found that high Q coils are most desireable on a mobile whip. However, this is very nice for the xtal controlled operator who does not want to race up and down the bands, but for the chap who desires to QSY, he must either have a series of coils, and a set of xtals designed for operation in their respective pairs, or make provision to tune the whip.

There are many and varied ways of tuning a whip, but the simplest and most effective way is to use a slider to short out the end of the inductance not required. This is the method used.

In order to induce a greater flow of current in the lower section of the whip, it becomes necessary to load the top of the whip with some extra capacity. This can take the form of a hat, or extra length. The writer settled for extra length because of the increased gain in received signals, and to get away from fancy faldals

The loading coil used is a fairly low Q coil, the reason being that as we are v.f.o. controlled, we can take advantage of its broadband characteristics and not have to have capacity tuning, as well as inductive tuning, to get right on the nose, which is essential with high Q coils.

The coil former consists of 1¼ inch plastic water pipe, 8 inches long. This water pipe has good r.f. property and is very solid. It can be worked by heating to 212°F. **in water and then will bend.**

To take both ends of the whip, a couple of plastic screwdriver handles were turned down to fit into each end of the piping, and hammered in. Yes, you can hammer them in and the pipe will not split.

One hundred and twenty turns of 18 gauge B. & S. enamel wire was then wound on very tightly, being anchored to a one-eighth screw threaded into the pipe at each end. This screw was made to go right into the whip itself so that it would serve as a contactor for the ends of the coil.

Next a slider was fitted to the coil and a piece of phosphor bronze used as the actual sliding contactor, the slider rail being made from a piece of 8 gauge hard-drawn copper wire which was bent and screwed to each end of the coil—insulated from the top end of the winding and connected to the bottom end.

A flat file was then brought into use to make a clean surface for the slider to slide on, then the whole coil was treated with clear lacquer.

Next a small coil consisting of 12 turns of 14 gauge B. & S. was wound on 1¼ inch diameter former and tapped at the seventh turn from the start.

The function of this coil is to act as an impedance matching transformer at the base of the whip. This coil is mounted right at the base of the whip and connected from the whip to ground. The feedline used is 10 feet of 50 ohm co-ax, the braid being earthed and the inner conductor for 40 metres is clipped to the tapping; for 80 metres, the inner conductor is connected to the top of the matching coil.

The loading coil is inserted at the junction of the first four feet section and the top eight feet. The reason for the eight feet on top has been explained earlier (extra capacity).

The whip in use at this station is one of the disposal types and was inserted in the plastic screwdriver handles by heating over a gas flame and then screwing in; on cooling down, the whip can be then screwed in and out as desired.

To tune the whip, connect the receiver to it and move the slider up and down the coil until a rise in receiver noise is heard, then tune in a station near the frequency that you desire to work on and again adjust the slider—one turn at a time—until the station is at its strongest level on the S meter. This adjustment is critical, as one turn will mean the difference of being able to load efficiently or not.

The whip will now accept power from the transmitter and it will be possible to QSY 10 Kc. either side of the frequency without any appreciable loss of radiation.

The above method of tuning was found to be the simplest and the most effective, not entailing any frequency meters, etc., and it is advised that it be adhered to.

In passing, ZLs have been worked on this whip from Tamworth on 40 and 80 metres, signals being R5 and S7-8 on 40 metres and as high as R5 S9 on 80 metres; and if you all know the ZL boys, you should know that they are not in the habit of handing out S9 reports indiscriminately.

The power used at this station is 4 watts on 40 metres and 8 watts on 80 metres. The reason for the smaller input on 40 will probably be told some other time.

— . . . —

BOOK REVIEW

(Continued from Page 3)

There are chapters devoted to recording and record manufacture, pick-ups, record players, tape recorders, amplifiers, speakers, etc. The section covering room acoustics is especially interesting.

Once you start reading this book, you will find difficulty putting it down, until you have read it right through.

"Hi-Fi from Microphone to Ear" is available from Philips Electrical Industries Pty. Ltd., 69-73 Clarence St., Sydney. Price £1/1/-.

RECEIVER NOISE IMPROVEMENT

BY D. G. HAWTHORNE,* VK3ZCD

An article recently published ("New Bottles for Old," "A.R.," Sept., '56) prompted the writer to try to improve the noise figure of some of the station receivers.

Sharp cut-off pentodes like the 6AG5 and the 6CB6 had previously been tried, but although there was an improvement in the noise level, trouble was experienced with intermodulation and overloading by strong local signals, particularly in the commercial bands.

Recently, a remote cut-off pentode, the 6BY7 or EF85, has become available locally. It has a noval base, transconductance of 6 Ma./V. (a noise figure better than that of the 6AG5) and a cut-off voltage of about —35 volts. Extensive internal shielding and a very low grid-plate capacitance, make it stable when used in conventional circuits.

The tube was tried in the writer's CR100; the cathode bias resistor of 150 ohms being connected to ground as the gain falls off rapidly with increasing bias. The Marconi has a 100 volt screen line, but better results were obtained by using series supply from the B+ line via a 68,000 ohm resistor. No additional by-passing was required.

The a.v.c. does not operate until the signals reach a level where noise is no longer a problem, and so it was used (and needed) to prevent overloading of the second r.f. amplifier. Detuning the aerial circuit, as used by VK3AKZ, was not used, there being an increased probability of image response on the higher frequencies.

For receivers other than the Marconi CR series, use of a.v.c. with the 6BY7 depends on the design. The tube was tried in a receiver similar in design to the AR7, best results being obtained when the voltage was obtained from the junction of two 2.2 megohm resistors connected in series between the a.v.c. line and ground.

The improvement in the signal-to-noise ratio was similar to that obtained with a 6AG5, but with virtually no intermodulation with transmitters on adjacent channels.

* 4 Thompson Crescent, Tamworth, N.S.W.

* Flat 3, 11 Leopold Street, South Yarra, Vic.

AMATEUR CALL SIGNS

FOR MONTH OF OCTOBER, 1956

NEW CALL SIGNS

VK— **New South Wales**

2APG/P—F. W. Fowler, 4 Thompson Cres., Tamworth.
2AWW—G. D. Wheaton, 361 Armidale Rd., Tamworth.
2AYW—J. B. Williams, Sattler St., Bega.
2AZM—J. D. Molle, "Beringa," New Line Rd., West Pennant Hills.
2ZDC—G. L. F. Collie, Boyce Ave., Wyong.
2ZDJ—C. J. Jirsa, 154 Avoca St., Randwick.
2ZDS—W. N. Saggers, 12 Henrietta St., Waverley.

Victoria

3ACG—C. F. Green, 20 Paloma St., South Oakleigh.
3AEM—H. E. Mitchell, 1 Thompson St., Hamilton.
3ZDW—F. R. Williams, 62 Wattle Valley Rd., Camberwell.
3ZEB—S. J. Beaton, 101 McKinnon Rd., McKinnon.

Queensland

4ZAM—K. N. Long, 12 Rilatt St., Wavell Heights, Brisbane.

South Australia

5EU—H. S. Young, 18 Chisholm Ave., Burnside.
5ML—A. M. Tonkin, 63 Lefevre Ter., North Adelaide.
5QL—J. L. Weatherley, 70 Willison Rd., Elizabeth South.
5ZBM—R. McGregor, 44 Albert St., Prospect.
5ZBP—C. C. Poole, 38 Norma St., Torrensville.
5ZCK—R. J. Krieg, 81 Angle Vale Rd., Gawler Rail.
5ZCM—G. J. Muirhead, 14 Adelaide St., Magill.
5ZCW—E. Westerman, 15 Central Ave., Clearview.

Western Australia

6SS—S. E. Slade (Dr.), 11 Colin St., West Perth.
6ZAW—P. Salinger, C/o. 6AM, Northam.
6ZBA—J. R. Bartlett, 38 Windsor St., East Perth.

Tasmania

7ZAA—R. K. Wilson, 11 Cunningham St., Burnie.

Territories

0DC—D. R. L. Callow, Mawson Antarctica.
0DJ—D. H. Johns, Mawson Antarctica.
0JP—J. D. Pinn, Mawson Antarctica.
9AT—E. J. Roberts, No. 2 Donga 2nd St. Lae, N.G.

CHANGES OF ADDRESS

VK— **New South Wales**

2IS—S. G. McLean, 16 Plunkett St., Drummoyne.
2NP—C. F. L. Bryar, 103 Tennyson Rd., Gladesville.
2RI—R. M. Tutton, 25 Fourth Ave., Eastwood.
2TY—R. W. Best, 54 Gladesville Rd., Hunters Hill.
2VD—C. M. Barnett, "Sunny Haven," East Pde., Buxton.
2ZS—W. J. Smith, Princes Highway, Bomaderry.
2ABW—E. G. Baker, 6 King St., Eastlakes.
2ALU—L. E. Pattison, 1 Campbell St., Wollongong.
2AYA—G. A. Ahlstron, 34 Melville St., Strathfield.

Victoria

3CZ—A. L. Berry, 6 Landen Place, Toorak.
3RA—R. C. Greig, 10 Newington Gr., North Caulfield.
3UG—F. N. Culliver, 18 Swanson St., Queenscliff.
3ZU—F. A. O'Donnell, 89 Sharpe St., Yarrawonga.
3ADP—D. C. Paice, Lot 24 Allister St., Mt. Waverley.
3ADJ—D. J. Harkin, 25 Williams Rd., Briar Hill.
3AXX—N. E. Turnbull, Station: 24 Bethall Ave., Parkdale.
3ZAT—D. D. Tanner, C/o. J. Watkins, Howship Ave., Ringwood East.
3ZDG—I. MacMillan, Station: 159 Dawson St., West Brunswick.

Queensland

4HF—C. H. Foley, Ionospheric Prediction Service, Black Weir, Townsville.

Western Australia

6GU—F. H. Harlock, 61 Sixton St., Inglewood.
6JC—H. J. Coles, Flat 3, 200 Adelaide Ter., Perth.
6ZAZ—C. G. Andrews, C/o. Broadcasting Station 6WA, Wagin.

Tasmania

7AL—T. A. Allen, Karoola Rd., Lindisfarne.

CANCELLED CALL SIGNS

VK— **New South Wales**

2ST—E. C. R. Stoney.
2AUO—A. E. C. Cooper.
2AWE—R. M. Weston. Now VK2AYK.
2ZAW—G. D. Wheaton. Now VK2AWW.

Victoria

3QF—F. Rowley.
3WK—F. W. Soumprou.
3ADO—D. Clarke.
3ARC—R.A.A.F. College Radio Club.
3AZC—L. Cumington.
3ZBB—A. J. Bowman.

Queensland

4EW—E. H. White.

South Australia

5FY—R. A. Catmur.

Tasmania

7DJ—D. H. Johns. Now VK0DJ.
7HY—H. M. Yeates.

Territories

1DC—D. R. L. Callow. Now VK0DC.

PERMITS GRANTED FOR TELEVISION EXPERIMENTS

VK— **Victoria**

3EC/T—E. B. Cook.
3JP/T—W. J. Carlyle.
3NR/T—N. G. Roberts.
3ARS/T—R. C. Stephens.
3ZAG/T—I. W. Herbert.

Western Australia

6EC/T—E. E. Cornelius.

THE TWENTIETH B.E.R.U. CONTEST

SIMPLIFIED SCORING AND LOGS

The main feature of the Twentieth B.E.R.U. Contest, to be held on **January 26-27, 1957**, is the introduction of a new system of scoring, making for simplified entries, and the replacement of scoring zones by a straight bonus for each new Empire area worked.

The old sliding scale of points, which began in the 'thirties, had many merits, but in recent years the percentage of logs received compared with the total number of participants has dropped sharply; it is believed that many Amateurs have been discouraged from making an entry by the complications of the old analysis sheet and the intricacies of "balancing the books." The new system eliminates these difficulties, and thus brings B.E.R.U. into line with most other R.S.G.B. events but, at the same time, retains the unique nature of this historic contest, considered by many Amateurs as undoubtedly the "high-light" of the DX season.

With the 1957 promise of high maximum usable frequencies and the likelihood of excellent DX conditions, the high frequency bands of 14, 21 and 28 Mc. should offer opportunities unequalled for many years (ionospheric storms permitting), particularly for Amateurs with restricted space for aerials and masts of limited height.

The Contests Committee is endeavouring to secure the maximum amount of overseas publicity for the 1957 event, but solicits the assistance of all members in bringing the dates and revised rules to the notice of stations throughout the Commonwealth. More than 400 stations participated in the 1956 event, but we hope to see a great increase in 1957. Remember B.E.R.U. offers the chance of completing your score of Empire prefixes for E.DX.C., B.E.R.T.A. or W.B.E. . . . make sure you are ready on all bands . . . and afterwards please submit an entry or check log.

RULES

1. The contest is divided into two sections, namely: (a) Senior—maximum licensed power; (b) Junior—maximum input 25 watts.

2. The contest (both sections) will start at 0001 G.M.T. on Saturday, January 26, and end at 2359 G.M.T. on Sunday, January 27, 1957.

3. The contest is open to all fully-paid-up members of the R.S.G.B. within the United Kingdom; to all British subjects outside the U.K. but within the British Empire and British Mandated Territories; and to members of British Forces of Occupation operating properly authorised stations. All entrants agree to be bound by the rules of the contest.

4. Only the entrant will be permitted to operate the station for the duration of the contest.

5. Entries must be set out as shown in the example herewith, using one side of the paper only. Entries must be postmarked not later than February 11, 1957, and must be addressed to R.S.G.B. Contests Committee, New Ruskin House, 28-30 Little Russell St., London, W.C.1. The closing date for acceptance of entries is March 31, 1957.

6. Operation is restricted to the following bands: 3.5, 7, 14, 21 and 28 Mc. Transmissions must be of type A1 (pure c.w.) only, and frequent tone reports of T8 or less may result in disqualification.

7. Entrants must operate within the terms of their licences. The input to the valve or valves delivering power to the aerial must not exceed 25 watts in the Junior section.

8. Contacts may be made with any station using a British Empire or DL2 call sign, except contacts within the entrant's own call area. British Isles stations may not work each other for points, and contacts with unlicensed stations in places where licences are obtainable will not count for points. The decision as to whether or not a station is valid will rest with the R.S.G.B. Contests Committee. Only one contact per band will count for points, but duplicate contacts should be logged.

9. Each completed contact will score 5 points. In addition a bonus of 20 pts. may be claimed for the first contact with each new Empire call area (as defined in the appendix) on each band. All British Isles stations (G, GC, GD, GI, GM and GW) count as only one call area.

10. Serial numbers must be exchanged and acknowledged before a contact can count for points. The serial number of 6 figures is made up of the RST report plus three figures which may start with any number between 001 and 100 for the first contact and will increase in value by one for each successive contact, e.g., 087 for the first and 088 for the second contact, etc.

11. A trophy or miniature will be awarded to the winner of each section, and certificates will be awarded to the first three entrants in each section. In addition a certificate will be awarded to the leading entrant in each call area regardless of the number of entrants in his call area provided that his score exceeds 1,000 points in the Senior section or 500 points in the Junior section. A certificate will be awarded in each call area in which there are ten or more entrants, to the runner-up, provided his score exceeds 1,000 points in the Senior section or 500 points in the Junior section.

B.E.R.U. CONTEST, JANUARY 26-27, 1957

Name [redacted] ... Claimed score .....

Address ... Call Sign .....

Transmitter ... Input ... Watts

Receiver ... Aerial(s) ... .

Date	Band Mc.	Time GMT	Call Sign of Station Worked	My Report on his Signals	His Report on my Signals	Points Claimed	Bonus Points	Leave blank
26	14	0006	G3XXX	569001	559003	5	20	
26	14	0009	VK2ZZ	579002	569004	5	20	
26	14	0012	GM3YY	569003	579012	5	—	
26	21	0730	GW3XX	589004	589054	5	20	

Total (points claimed plus bonus points) 20 plus 80 equals 80.

"Declaration" I hereby certify that I have operated within the terms of my licence and in accordance with the rules and spirit of the contest. I agree that the decision of the Council of the R.S.G.B. shall be final in all cases of dispute. I certify that the input power to the final stage of the transmitter was ... watts.

Date... ... Signed.....

RECEIVING SECTION

1. To count for points the log must show in columns (a) date, (b) band, (c) Time G.M.T., (d) station heard, (e) serial number sent, (f) station worked, (g) points claimed, (h) bonus points claimed. CQ or Test calls will not count for points.

2. Each logging will score points in the same way as contacts in the Transmitting Contest (see Rule 9 earlier).

3. The same station may be logged only once on each band.

4. Logs must be addressed and postmarked as for entries in the Transmitting contest.

APPENDIX

The following call areas are recognised for the purposes of scoring in this contest:—

G, GC, GD, GI, GM, GW—as one call area.	VQ9
MP4 (Bahrein, Muscat and Oman).	VR1 (Gilbert & Ellice Islands).
MP4 (Qatar).	VR1 (Brit. Phoenix Is.).
MP4 (Trucial Oman).	VR2
VE1	VR3
[redacted]	VR4
VE2	VR5
VE3	VR6
VE4	VS1
VE5	VS2
VE6	VS4
VE7	VS5
VE8A-L (Yukon Ter.)	VS6
VE8M-Z (N.W. Ter.)	VS9 (Aden).
VK1 (Aus. Antarctic).	VS9 (Maldive Is.).
VK1 (Heard Island).	VU2
VK1 (Macquarie Is.).	VU4
[redacted]	ZB1
VK2	ZB2
VK4	ZC2
VK5	ZC3
VK6	ZC4
VK7	ZC5
VK9 (Norfolk Is.).	ZD1
VK9 (Papua).	ZD2
VK9 (New Guinea, Bismark & Admiralty Is.)	ZD3
VO	ZD4
VP1	ZD6
VP2 (Leeward Is.).	ZD7
VP2 (Windward Is.).	ZD8
VP3	ZD9
VP4	ZE
VP5 (Jamaica).	ZK1 (Cook Islands).
VP5 (Cayman Is.).	[redacted] (Lord Howe Is.).
VP5 (Turks & Caicos Islands).	ZK3
VP6	ZL1
VP7	ZL2
VP8 (Falkland Is.).	ZL3
VP8 (Grahamaland).	ZL4
VP8 (Sandwich Is.).	ZM3
VP8 (South Georgia).	ZS1
VP8 (Sth. Orkney Is.).	ZS2
VP8 (Sth. Shetland Is.).	ZS3
VP9	ZS4
VQ1	ZS5
VQ2	ZS6
VQ3	ZS7
VQ4	ZS8
VQ5	ZS9
VQ6	AP
VQ8 (Chagos).	5T2
VQ8 (Mauritius).	4S7
	DL2

—Reprinted from the R.S.G.B. "Bulletin," May, 1956.

DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: The only report on conditions on this band refers to an opening to Asia, 1900-2000z.

7 Mc.: Apart from the usual openings to the **North American** continent, contacts have been reported with **Europe** and **Africa** (1600-2000z).

14 Mc.: Conditions seem to have deteriorated somewhat, although all continents could be contacted during the month. Openings to **Africa** and **Europe** were observed between 0700 and 0900, and 1900 and 2200z. **South America** was represented around 1000-1200z.

21 Mc.: Openings to the **American** continents (0100-0500z and 1900-2300z) and **Europe** and **Africa** (around 0500-0800, and 0900-1400z) were not very reliable but provided reasonable contacts.

27/28 Mc.: During the month, this band opened to **North** and **Central America** (0100-0400z) and **Europe** (0900-1200z) according to reports.

NEWS AND NOTES

At the time of writing, Melbourne is enjoying one of the greatest privileges—that of being an Olympic City. Melbourne, as host to the XVI Olympiad, thus joins the rank of distinguished world capitals which have been host cities to one or more Olympiads during the last sixty years. In accordance with the true Olympic spirit, the Victorian Division of the W.I.A., through its Olympic Games Committee, has attempted to extend friendliest hospitality to Amateur visitors from overseas, and, I hope, we have been successful. The Olympic period saw the presence of the following DX Amateurs at W.I.A. functions:

Manuel **XE2JK**, Senator of the Republic of Mexico and Chief de Mission, Mexican Olympic Team.

Bob **YA1AA**, Team Official, Afghan Olympic Team, ex-W9MOW.

Armas **OH2NB**, Coach, Finnish Olympic Team.

Chester **W0PBR**, Manager, U.S. Olympic Cycling Team.

Other guests were ZM6AS, ZL2MN, ZL2SK, ZL2ABJ, and ZL2ABR.

The following news items have come to hand:

VR2DA is ex-VK2PA (from 2QL).

Although the call sign DU0RT has been allocated to W6ITH, for operation from Freedomland (Spratley Islands), no further information is available at this stage (from NCDXC).

It has been reported that the club station YI2AM is experiencing difficulty in renewing its licence (from W6YY).

QTHs OF INTEREST

(from W6YY, NCDXC, and VK7LZ, BERS195, and Rod de Balfour)

XL3L—Sam Butler, Radio Station, Monrovia.
Ex-KJ6BN 200 East McGaffey Street, Roswell, New Mexico, U.S.A.
EA9BJ Via U.R.E.
PJ2AW—Mathias Vrolijk, Fantein weg 4, San Nicolas, Aruba, Netherland West Indies.
KX6BQ—Box 207, A.P.O. 435, San Francisco, California, U.S.A.
HR1LW—Box 93, Tegucigalpa, Honduras.
KT1AA—C/o. American Legation, Tangiers

ACTIVITIES

3.5 Mc.: Frank **2QL** heard UB5KEP.

7 Mc.: **2QL** reports EA4EB (0750z), ZD6RM. Laurie **2AMB** adds ZD6RM*, CR7AO*, VQ6AD*, VS1GX*, ZS2HI* ZS6AJH*, and ZS5EU. ZS5IR, ZS5PM, ZS6ARF, FA8BG, DJ2HC, ZS2LB, VU2RM. Neville **2APL** worked K4AQL/KG6*, and JA8AE* Dave WIA-L3039 heard a long list of Wa.

14 Mc C.w. **2QL:** HC1LE*, HK5CR* and ZS2MI, CR7AR, VQ5QJ, ZC5JM, VQ4KRL, PJ2ME, FG7XC, UG2KAB, VP2LU, XW8CR, and **EA8BF** **2AMB** VP2LU*, VU*, PZ1AP*, CE-3DZ*, VQ5GJ*, ZD6RM*, ZE1JV*, VS*, OE*, ZS9R*, ZS6XL*, and FB8BR. FB8BD, ZS3SC, ZS3Q GW, CE3CB KV4, VQ6AB, LU8ZW, VQ1GR **2APL** CN8BK*, EA*, G* Frank **3PC:** HB*, DL* F* SM*, CT*, PA0*, OK* Doug **5BY.** ZS9R*, PZ1RH*. John **5HI:** VK9AJ* (Cocos Is.) Harry **5MY:** PZ1RH* Ray **5RK** VU2KL* Col **7LZ:** GM*, DL*, ZB1ZY* Eric **BERS195:** CE3DZ, CR7AR, EI5BC, FB8BV, FE8AE, HS1VR, HZ1AB, W4EMF/KS4, VQ2GR, VQ5GJ, VQ8AD, YS1O, YV5HL, ZC5JM, ZS9Q, 3W8AA. **3AHH:** G*, XE1A*, YV5BJ*, KT1AA*

14 Mc A.m. **3AMB** ZS6XL*, and EA8BH, OQ5FH, ZS3Q, VK9AJ **5HI** VP1JH*, YV3DE*, KP4ZC*, HP1GD*, I*, F*, HP9QU*, G*. **7LZ:** HK1DZ*, K2ASL/KP4*, KA* Rod de Balfour CT, GI, I, OZ, EA, F, ET2US, AP2U, VU, XZ2KN, JZ0PA, XW8AC, KA0IJ, FU8AC, FU8AD, JZ0PC, 4S7YL, HI6EC, CM9AA, CO-2CY, KP4WD, KP4ZT, HK1DZ, PY2CK.

21 Mc: **2QL** LU1BA*, CE3ZO*, UA4HP*, ST2NG*, PA8CR*, SP1KAA*, and KV4BQ, HZ-1AB, VQ4DT, UA1AF. **2AMB.** CE3ZO*, LA*, XE1PJ*, and CE1AH, JZ0PC, JZ0PP **2APL:** YV5AB*, VE*, G* 7LZ: G*, HR1LW*, KA*, PY3QX*, CE3AG*. Rod de Balfour G, DL, GM, I, OH ON, HB, F, VU, HZ1AB, JA, VP1EE, VP5EM, TI2RC **3AHH:** KZ5KK*.

27/28 Mc.: **2QL** reports OH*, G*, SM*, PJ2AN* and VS6, GM, GD, ON. **5HI** adds KA*, VE*. 7LZ spoke to VE*. Rod de Balfour heard KM6AX, JA, KR6.

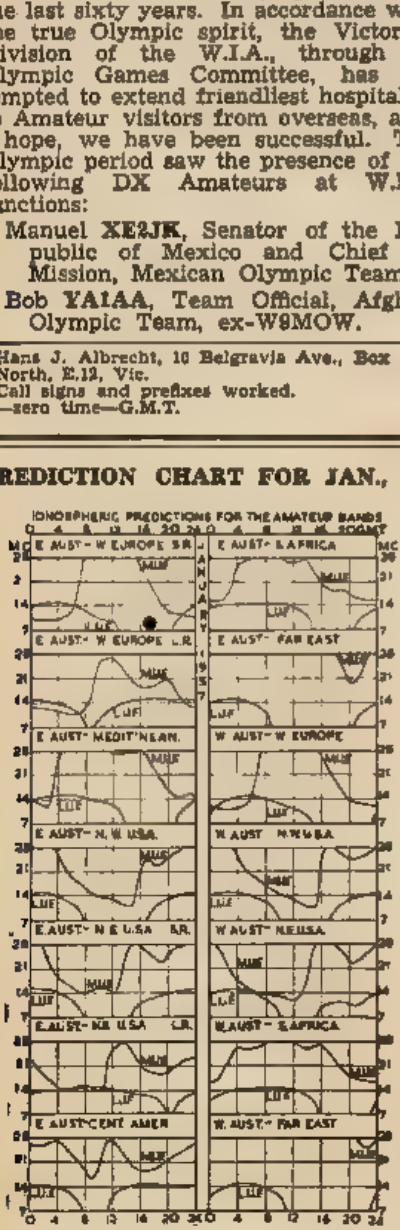
Rare QSLs were received by: **2QL:** VR1B, VK9TW. **5HI:** ET3LF. **7LZ:** VK9AJ, TF5TP. **BERS195:** CE3AW, CR7AR, 1S1FIC, JZ0AG, VK9TW, YJ1RF, ZC5GL. Rod de Balfour KA0IJ

Thanks to W6YY, the Northern California DX Club, and VKs **2QL, 2AMB, 2APL, 3FC, 5RK** (QSP 5BY, 5HI, 5MY), and BERS195, WIA-L3039, Rod de Balfour (QSP 7LZ).

A Happy and Prosperous New Year to all readers with best DX for 1957!

† Hans J. Albrecht, 16 Belgravia Ave., Box Hill North, E.12, Vic.
* Call signs and prefixes worked.
z—zero time—G.M.T.

PREDICTION CHART FOR JAN., '57



APPLICATIONS FOR W.B.E. AWARD

All applications for the W.B.E. Award must be accompanied by a money order for seven shillings sterling currency, made payable to the R.S.G.B. The old price was 2/6, but on 1/9/56 the price went up to 7/-.

1957 Antarctic Personnel

The following personnel of the 1957 Antartic Team have taken out Amateur licenses:—

Macquarie Island

VK0AA—W. J. Steurt (ex-VK1ZBS), 57 Cooks Av., Canterbury, N.S.W.
VK0CJ—C. J. McNaughton, C/o. Gouge, "Sunshine," Wybong, via Muswellbrook, N.S.W.

Vestfold Hills (Princess Elizabethland)

VK0AB—Alan Hawker (ex-VK3IB and VK1AC), 75 Lloyd St., Dimboola, Vic. (Cards to VK2EG).

Mawson

VK0AC—Carl Nilsoon, 53 Marine Pde., Seacliffe, South Aust.
VK0AS—A. H. Sandilands (Sandy), 23 Kennaway St., Tusmore, South Aust.
VK0DC—David Callow (ex-VK1DC). (Cards to Federal Bureau).
VK0DJ—David Johns (ex-VK1DJ and VK7DJ), 28 Waterworks Road, Hobart, Tas.
VK0JP—J. D. Pinn. (Cards to Federal QSL Bureau).
VK0PK—Peter King (Cards to VK2EG).
VK0RR—Roy Arnell (ex-VK1RR), Box 8, Ararat, Vic.
VK0ZM—Bernie Shaw (ex-VK1ZM), 23 William Road, Herne Bay, N.S.W.

Bill Storer, VK2EG (ex-VK1BS and VK1EG), Lot 11, Prince Charles St., French's Forest, Sydney, N.S.W., is handling cards on behalf of VK0AB and VK0PK. Cards for other stations listed above should be sent to the home address given or to the Federal QSL Manager, 23 Landale St., Box Hill, E.11, Vic.

D.X.C.C. LISTING

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK4FJ	31	199	VK3JD	1	155
VK4HR	13	183	VK4KS	9	182
VK6RU	2	178	VK6KW	4	180
VK3ATN	26	177	VK4RW	22	147
VK3BZ	3	176	VK3LN	11	141
VK3EE	10	168	VK3AWW	14	140

C.W.

Call	Cer No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK4FJ	29	234	VK5BY	45	193
VK3BZ	6	222	VK3CX	26	192
VK3FH	15	215	VK2EO	2	183
VK4HR	8	212	VK4EL	9	175
VK3XU	48	201	VK5RX	23	169
VK3KB	10	200	VK3YL	39	168

Amendments

VK4RW	47	131	VK3RJ	42	119

OPEN

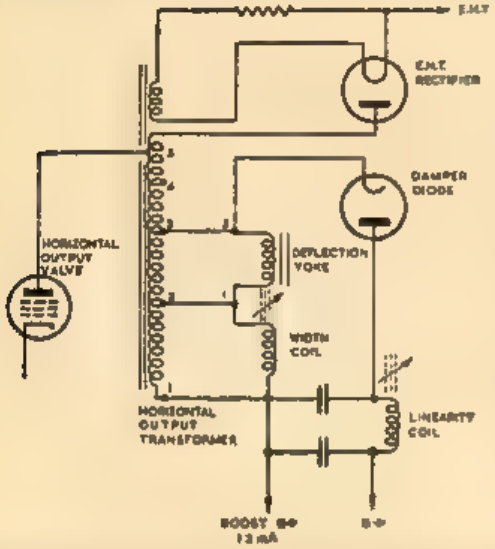
Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK2ACX	5	239	VK3JE	13	198
VK4FJ	32	232	VK2NS	18	195
VK3BZ	4	231	VK3HG	3	190
VK4HR	7	224	VK4EL	10	175
VK6RU	8	211	VK6KW	13	171
VK3XU	61	209	VK2DI	2	170

Amendments

VK4RW	53	185			

RADIOTRON
TELEVISION VALVE SERIES

The damper diode in a TV receiver increases the efficiency of operation of the horizontal deflection circuit by recovering energy from the magnetic field which is set up — in the yoke and output transformer — by current from the output valve. Briefly the operation is:—



SIMPLIFIED DIAGRAM OF HORIZONTAL OUTPUT AND E.H.T. CIRCUITS.

(1) A voltage of approximately saw-tooth wave-form is applied to the grid of the horizontal output valve with the "pulse" of the saw-tooth in a negative direction.
(2) This negative pulse in the grid wave-form cuts off the plate current of the horizontal output valve so that a large positive pulse is developed across the inductance of the horizontal output transformer.
(3) This positive pulse sets up, and becomes the first quarter-cycle of, a damped high-frequency oscillation in the plate circuit.
(4) During the first half-cycle of the damped oscillation the cathode of the damper diode is positive with respect to the plate and the damper diode cannot conduct.
(5) During the second half-cycle the cathode becomes negative with respect to the plate causing the damper diode to conduct.
(6) The diode conduction current flowing in the horizontal output transformer (and thus in the yoke) is in fact the first part of the sweep deflection current in the yoke.
(7) As the damper-diode current decreases towards zero, the saw-tooth voltage on the grid of the horizontal output valve is passing from cut-off to less-negative and then positive grid voltages.
(8) The horizontal output valve consequently starts to conduct and draws a steadily increasing plate current through the output transformer and yoke thereby providing the second half of the sweep current.
(9) During the period of damper-diode conduction the horizontal output valve is cut off and current flows into the capacitor across the linearity coils, charging them to a voltage some hundreds of volts higher than the normal B+ supply voltage.
(10) The plate of the horizontal output valve is supplied from this boost supply, thereby making use of the power recovered by the damper diode from the magnetic field of the deflection yoke and output transformer.

The damper diode thus provides the first half of each cycle of deflection current in the yoke by rectifying the damped oscillation in the output transformer and then allows the power recovered to be used in the plate circuit of the horizontal output valve.

CHARACTERISTICS:

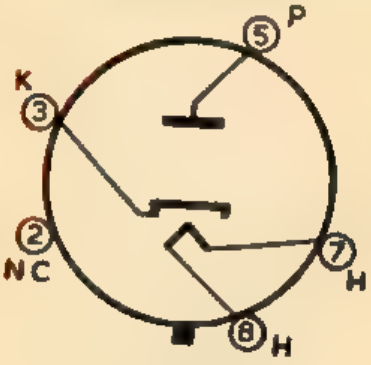
HEATER VOLTAGE	6.3 volts
HEATER CURRENT	1.2 amps.
CAPACITANCE (Heater to cathode)	7.5 μμF

MAXIMUM RATINGS (damper service)

PEAK INVERSE PLATE VOLTAGE* (absolute max.)	4400 volts
PEAK PLATE CURRENT	750 mA
AVERAGE PLATE CURRENT	125 mA
PLATE DISSIPATION	4.8 watts
PEAK HEATER-CATHODE VOLTAGE (absolute max.) (heater negative with respect to cathode).	4400 volts

6AX4GT†

SOCKET CONNECTIONS



(bottom view)

Pin 2 — No Connection (Do not use.)
Pin 3 — Cathode
Pin 5 — Plate
Pin 7 — Heater
Pin 8 — Heater

*The duration of the voltage pulse must not exceed 15% of one horizontal scanning cycle

†For further information on the 6AX4GT and other Radiotron Television Valves, consult the TV1 Booklet. Additional copies of this advertisement are available free and post free on request

AMALGAMATED WIRELESS VALVE CO. PTY. LTD.
47 YORK ST., SYDNEY

VC 9/56

Australian DX C.C. Alphabetical List of Countries by Prefix

The list of Countries hereunder and as amended from time to time in Federal Awards Notes is the Official List to be used in connection with the issue of the Australian DX C.C. Award.

The list below shows first the Prefix, the Country, and the Zone Numbers in parenthesis (as used for "CQ" W.A.Z. Award).

AC3—Sikkim (22)
AC4—Tibet (23)
AP—Pakistan (21, 22)
BV (C3)—Formosa (24)
C (unofficial)—China (23, 24)
C3—See BV.
C9—Manchuria (24)
CE—Chile (12)
CE7Z, LU-Z, VK1, VP8, Antarctica (13, 29, 30)
CE0—Easter Island (12)
CM, CO—Cuba (8)
CN2, KT1—Tangier Zone (33)
CN8—French Morocco (33)
CP—Bolivia (10)
CR4—Cape Verde Is. (35)
CR5—Port. Guinea (35)
CR5—Principe, Sao Thome (36)
CR6—Angola (36)
CR7—Mozambique (37)
CR8—Goa (Port. India) (22)
CR9—Macau (24)
CR10—Port. Timor (28)
CT1—Portugal (14)
CT2—Azores Is. (14)
CT3—Madeira Is. (33)
CX—Uruguay (13)
DJ, DL, DM—Germany (14, 15)
DU—Philippine Is. (27)
EA—Spain (14)
EA6—Balearic Is. (14)
EA8—Canary Is. (33)
EA9—Ifni (33)
EA9—Rio de Oro (33)
EA9—Spanish Morocco (33)
EA0—Spanish Guinea (35)
EI—Eire (14)
EL—Liberia (35)
EQ—Iran (21)
ET2—Eritrea (37)
ET3—Ethiopia (37)
F—France (14)
FA—Algeria (33)
FB8—Amsterdam and St. Paul Is. (39)
FB8—Kerguelen Is. (39)
FB8—Madagascar (39)
FC—Corsica (15)
FD—Fr. Togoland (35)
FE8—Fr. Cameroons (36)
FF8—Fr. West Africa (35)
FG—Guadeloupe (8)
FG—Saint Martin Is. (8)
FI8—Vietnam (26)
FK8—New Caledonia (32)
FL8—Fr. Somaliland (37)
FM—Martinique (8)
FO8—Clipperton Is. (7)
FO8—Fr. Oceania (32)
FP8—St. Pierre and Miquelon Is. (5)
FQ8—Fr. Equat. Africa (36)
FR7—Reunion Is. (39)
FU8, YJ—New Hebrides (32)
FW8—Wallis & Futuna Is. (32)
FY7—Fr. Guiana and Inini (9)
G—England (14)
GC—Channel Is. (14)
GD—Isle of Man (14)
GI—Northern Ireland (14)
GM—Scotland (14)
GW—Wales (14)
HA—Hungary (15)
HB1, 9—Switzerland (14)
HC—Ecuador (10)
HC8—Galapagos Is. (10)
HE—Liechenstein (14)
HH—Haiti (8)
HI—Dominican Republic (8)
HK—Colombia (9)
HK0—Arch. of San Andres & Providencia (9)
HL—Korea (25)
HP—Panama (7)
HR—Honduras (7)
HS—Thailand (26)
HV—Vatican City (15)
HZ—Saudi Arabia (21)
I—Italy (15)
I1—Trieste (15)
I5, MS4—Italian Somaliland (37)
IS1—Sardinia (15)
JA, KA—Japan (25)
JY, ZC7—Jordan (20)
JZ0—Neth. New Guinea (28)
K, W—United States of America (3, 4, 5)
KA—See JA.
KA0—Bonin and Volcano Is. (27)
KB6—Baker, Howland & Phoenix Is. (31)
KC4—Navassa Is. (8)
KC6—East Caroline Is. (27)
KC6—West Caroline Is. (27)
KG1—See OX.
KG4—Guantanamo Bay (8)
KG6—Mariana Is. (27)
KH6—Hawaii (31)
KJ6—Johnston Is. (31)
KL7—Alaska (1)
KM6—Midway Is. (31)
KP4—Puerto Rico (8)
KP6—Palmyra Group & Jarvis Is. (31)
KR6—Ryukyu Is. (25)
KS4—Swan Is. (7)
KS6—American Samoa (32)
KT1—See CN2.
KV4—Virgin Is. (8)
KW6—Wake Is. (31)
KX6—Marshall Is. (31)
KZ5—Canal Zone (7)
LA, LB—Jan Mayen (40)
LA, LB—Norway (14)
LA, LB—Svalbard (40)
LU—Argentine (13)
LU-Z—See CE7Z.
LX—Luxembourg (14)
LZ—Bulgaria (20)
M1—San Marino (15)
MB9—See OE.
MP4—Bahrein Is. (21)
MP4—Kuwait (21)
MP4—Qatar (21)
MP4—Trucial Oman (21)
MS4—See I5.
OA—Peru (10)
OD5—Lebanon (20)
OE, MB9—Austria (15)
OH—Finland (15)
OK—Czechoslovakia (15)
ON4—Belgium (14)
OQ5, 0—Belgian Congo (36)
OX, KG1—Greenland (40)
OY—Faeroes (14)
OZ—Denmark (14)
PA0—Netherlands (14)
PJ2—Neth. West Indies (9)
PJ2M—Sint Marteen Is. (9)
PK1, 2, 3—Java (28)
PK4—Sumatra (28)
PK5—Borneo (Indonesia) (28)
PK6—Celebes & Molucca Is. (28)
PX—Andorra (14)
PY—Brazil (11)
PZ1—Neth. Guiana (9)
SM—Sweden (14)
SP—Poland (15)
ST—Anglo-Egyptian Sudan (34)
SU—Egypt (34)
SV—Greece (20)
SV—Crete (20)
SV—Dodecanese Is. (20)
TA—Turkey (20)
TF—Iceland (40)
TG—Guatemala (7)
TI—Costa Rica (7)
TI9—Cocos Is. (7)
UA1, 3, 4, 6—European R.S.F.S.R. (15, 16, 17)
UA9, 0—Asiatic R.F.S.F.R. (17, 18, 19, 25)
UB5—Ukraine (16)
UC2—White Russia S.S.R. (16)
UD6—Azerbaijan (21)
UF6—Georgia (21)
UG6—Armenia (21)
UH6—Turkoman (17)
UI8—Uzbek (17)
UJ8—Tadzhik (17)
UL7—Kazakh (17)
UM8—Kirghiz (17)
UN1—Karelo-Finnish (16)
UO5—Moldavia (16)
UP2—Lithuania (15)
UQ2—Latvia (15)
UR2—Estonia (15)
VE, VO—Canada (2, 3, 4, 5)
VK—Australia (29, 30)
VK1—See CE7Z.
VK1—Heard Is. (39)
VK1—Macquarie Is. (30)
VK9, ZC2—Cocos Is. (29)
VK9—Nauru Is. (28)
VK9—Norfolk Is. (32)
VK9—Papua (28)
VK9—Territory of New Guinea (28)
VO—See VE.
VP1—Br. Honduras (7)
VP2—Leeward Is. (8)
VP2—Windward Is. (8, 9)
VP3—Br. Guiana (9)
VP4—Trinidad & Tobago (9)
VP5—Cayman Is. (8)
VP5—Jamaica (8)
VP5—Turks & Caicos Is. (8)
VP6—Barbados (8)
VP7—Bahamas Is. (8)
VP8—See CE7.
VP8—Falkland Is. (13)
VP8—South Georgia Is. (13)
VP8—South Orkney Is. (13)
VP8—South Sandwich Is. (13)
VP8—South Shetland Is. (13)
VP9—Bermuda (5)
VQ1—Zanzibar (37)
VQ2—North. Rhodesia (36)
VQ3—Tanganyika (37)
VQ4—Kenya (37)
VQ5—Uganda (37)
VQ6—Br. Somaliland (37)
VQ8—Chagos Is. (39)
VQ8—Mauritius (39)
VQ9—Seychelles (39)
VR1—Gilbert, Ellis & Ocean Is. (31)
VR2—Fiji Is. (32)
VR3—Fanning Is. Group (31)
VR4—Solomon Is. (28)
VR5—Tonga Is. (32)
VR6—Pitcairn Is. (32)
VS1—Singapore Is. (28)
VS2—Malaya (28)
VS4—Sarawak (28)
VS5—Brunei (28)
VS6—Hong Kong (24)
VS9—Aden and Socotra (21)
VS9—Maldive Is. (22)
VS9—Sultanate of Oman (21)
VU2—India (22)
VU4—Laccadive Is. (22)
VU5—Andaman & Nicobar Is. (26)
XE—Mexico (6)
XW8—Laos (26)
XZ—Burma (26)
YA—Afghanistan (21)
YI—Iraq (21)
YJ—See FU8.
YK—Syria (20)
YN—Nicaragua (7)
YO—Roumania (20)
YS—Salvador (7)
YU—Yugoslavia (15)
YV—Venezuela (9)
ZA—Albania (15)
ZB1—Malta (15)
ZB2—Gibraltar (14)
ZC2—See VK9.
ZC3—Christmas Is. (29)
ZC4—Cyprus (20)
ZC5—Br. North Borneo (28)
ZC6—Palestine (20)
ZC7—See JY.
ZD1—Sierre Leone (35)
ZD2—Nigeria (35, 36)
ZD3—Gambia (35)
ZD4—Gold Coast, Br. Togoland (35)
ZD6—Nyasaland (37)
ZD7—St. Helena (36)
ZD8—Ascension Is. (36)
ZD9—Tristan da Cunha and Gough Is. (38)
ZE—South. Rhodesia (38)
ZK1—Cook Is. (32)
ZK2—Niue (32)
ZL—New Zealand (32)
ZM6—Br Samoa (32)
ZM7—Tokelau Is. (31)
ZP—Paraguay (11)
ZS1, 2, 4, 5, 6—Union of South Africa (38)
ZS2—Marion Is. (38)
ZS3—South West Africa (38)
ZS7—Swaziland (38)
ZS8—Basutoland (38)
ZS9—Bechuanaland (38)
3A—Monaco (14)
3V8—Tunisia (33)
3W8—Cambodia (26)
4S7—Ceylon (22)
4W1—Yemen (21)
4X4—Israel (20)
5A—Libya (34)
9S4—Saar (15)
—Aldabra Is. (39)
—Bhutan (22)
—Comoro Is. (39)
—Fridjtof Nansen Land (40)
—Kermadec Is. (32)
—Mongolia (23)
—Nepal (22)
—Tromelin Is. (37)
—Wrangel Is. (19)

FIFTY-SIX MEGACYCLES AND ABOVE

Australian Amateurs are advised to keep a look out for ZK1BS, in the Cook Islands, on 5 metres. He is desirous of making contacts with VK.

VICTORIA

At the November Fox Hunt the turn-up was rather disappointing, in fact it was one of the smallest turn-ups we have ever had, but perhaps the hounds were all saving themselves for the Olympic Fox Hunt. However, the hunt went on as usual and the first hiding spot the Fox 3LN chose was behind a shed in Ransome Park at Royal Park, next he hid in very long grass at Camp Pell, then in a car park in Ascot Vale and in the next spot he did his famous disappearing trick. It was in some rather rough country at Maidstone, one minute the hounds saw him, the next minute he had disappeared and then before they knew what was going on he reappeared round behind them again. What happened in between just nobody knew, but our guess is that some of those hounds will be visiting that spot again just to convince themselves that the Fox didn't take on some ghostly form and pass straight through bricks and mortar. Bob 3OJ acted as control station and was assisted with cross bearings from Ian 3ALZ, thanks Bob and Ian. The final location was held at the home of Ron 3ANO and Dot Jones in Sunshine where the gang had supper together and the usual 89 plus natts. All admired Ron 3ANO's shack. Ron has a very nice set-up, he has a room quite apart from the house all to himself and with his armchair and his mike, it's just an Amateur's idea of paradise. His equipment also is exceptionally nice, he has a 5 panel 6 ft. rack covering all of the low frequencies, v.f.o. driving a pair of 807s in the final and the operating table is the console type with beam motors and indicators, plus receivers. Ron builds all his own equipment and everything was very beautifully finished showing very creditable workmanship.

Thank you Ron and Dot for inviting the Group to your home to finish off a pleasant evening.

Even standing room was at a premium at the last V.h.f. Group meeting when there were 30 present to hear a very interesting lecture on T.V. by Keith 3HK, who brought in his home built t.v. rx to demonstrate and describe to the Group. He is getting a very excellent picture and also sound too is very good and his workmanship brought forth the admiration of all present. He uses a Loran c.r.o. as a basis for the t.v. rx. The picture tube is a 5CP1 with r.f. power supply, the turret and i.f. strip from a Rebecca R1045 radar transceiver. The sound i.f. uses two stages, the first being an i.f. amplifier and the second a limiter followed by ratio detector and audio amplifier 6SL7 and 6V6. The sync. separator uses a VR65A, the frame osc. is a Miller transitron type using VR65A and 6SH7 phase inverter. The line osc. is a cathode coupled multi-vibrator type using 6SN7 and another 6SN7 as a phase inverter.

We were very pleased to have two international visitors at our meeting. They were Bob YA1AA (ex-W9MOW, ex-VU2DJ), from Kabel in Afghanistan, who works on 5 and 20 mx and who is incidentally the only licensed Amateur in Afghanistan, his location is situated 80 miles from the Russian border. He gave a very interesting short talk on his hobbies which are s.s.b. and hi-fi binaural. Our other visitor was Francois La Fortune, from Belgium, an Olympian here to compete in the shooting and an s.w.l. in Belgium.

The first Field Day of the summer season for v.h.f. operators was held on 16th December. Further Field Days will be held on the third Sunday in February, March and April, but at the moment these dates are still only tentative pending the date to be set for the National Field Day.

Rules for V.h.f. Field Days

The bands that may be operated are 144 Mc. and above. Any one station may be contacted once only on each particular band on each field day.

Scoring.—One point for each air line mile in each contact and extra bonus points will be awarded to the operators who make the three longest distance contacts on each band, these contacts will receive double points. The distance to be arrived at during the QSO.

The time duration of the Field Day will be the 24 hours of the Sunday on which the Field Day is being held.

Both portable and home stations are eligible to participate, but in each contact one station at least must be a portable. Home to home station contacts cannot claim points. An attractive certificate will be awarded to the winner of each field day.

Logs to be forwarded to the Secretary of the V.h.f. Group, Mr. Bob Stevens, VK3OJ, 17 Jervis Street, Burwood, within 14 days of the date of the Field Day.

Make sure to take a map and compass or ruler with you to work out the mileage. To avoid the disappointment of finding someone else at your favourite field day location, book your mountain top with Phyl Moncur, 125 Union Road, Ascot Vale, and it will be advertised in the 3WI Sunday morning broadcasts.

It has been suggested that Thursday evening, between 8 and 10 p.m. should be set aside as hook-up night with particular emphasis on the Western District where there is a whole host of stations looking for Melbourne contacts.—P.M.

QUEENSLAND

This past year of v.h.f. activities in South-Eastern Queensland, particularly, has been quite a memorable one. Firstly, we have seen quite a rapid increase in the number of limited and fully licensed Amateurs on the v.h.f. bands. Whilst we consider 2 mx to be THE v.h.f. band it has been noticed that a few of the "dyed-in-the-wool" d.c. boys are casting furtive glances at the possibilities of a.c. bands.

As most local activity is centred around 144 Mc. some interesting things have been accomplished in the way of converter design, extended transmissions, etc., to say nothing of the frequent and pleasurable 2 mx d.f. meetings.

It is quite evident that the weakest link in v.h.f. communication is, perhaps, the rx. The popular solution is the construction of effective low-noise, high gain converters associated with a good communication rx. Quite a few of the boys have thrown up "five-over-fives" and "sixteen elements" which really pay off when the going gets tough.

4JO (Brisbane) has at long last brought 4CB (Maryborough) and 4ZAF (Warwick) together and although results were not good, they were encouraging, as conditions were rather poor at the time. Better conditions, we think, should do the trick! Good luck to you!

Two mx conditions have unfortunately varied quite considerably to the extent that the usually reliable 5/9 Brisbane-Warwick path, has at times been badly affected by heavy QSB of considerable duration. On the other hand, however, the difficult coastal path to Palm Beach, near the N.S.W.-Qld. border, has at times really opened up to a good 5/9.

Speaking of Warwick previously, reminds me that 4ZAA and 4ZAT went mobile for their last holidays and on passing through that city knocked up 4ZAF at 2315 hours. 4ZAF didn't see why he should be out of bed and 4ZAE (in Brisbane) shouldn't so—a long distance phone call to 4ZAE—the result strangely enough was a nice QSO which ended about 0040 hours.

4ZAT and 4ZAA that same night left Warwick and tried the next morning to reach Brisbane from Stanthorpe (120 miles approx.), but without success. The boys subsequently ended up in Victoria, I think, and brought back some interesting stories and plenty of new v.h.f. contacts.

We really have enjoyed ourselves at the W.I.A. hidden tx hunts. Our sincere thanks go to Mrs. 4JO for the excellent suppers she provided after the "show" was over. As our numbers increased we held several on the spot barbecues as occurred on a recent Sunday afternoon when 4LM and his associates "set the stage." The hunt took the boys to Mt. Crosby and to an inspection of the tremendous underground pumping station there. Yes! We certainly have enjoyed ourselves immensely at these hunts, but out of all our hilariously funny incidents comes a claim for an Australian record!! Our friend John 4FP, who has a pilot's licence for his Jaguar car, located the hidden tx at night, through strange suburbs, in the amazing time of ten minutes! The distance in a straight line from the starting point to the tx (according to the Lands Department) was 5 miles 35 chains. Not a bad effort at all, John!

Incidentally, these hunts are open to all who profess an interest in radio and anyone who wishes to participate may unconditionally do so. Drop in at the W.I.A. meetings where the boys will give you much information of the subject.—4ZAE.

SOUTH AUSTRALIA

Interest recently seems to have centred on "building," just about everyone spoken to has mentioned some plan or another under way, be it antennae, or finals, so we should have a crop or two of newer or bigger and better sigs on v.h.f. soon.

Dave 5ZAM, who paid me a visit recently, reported his gear going well and in spite of temporary antenna has regular skeds with Ray 5ATN and keeps in touch with the Mt. Gambier gang via 2 mx. Dave is to try a skeleton slot soon to drive his 5 over 5. Gordon 5XU has fixed up a vertical J antenna for 5 mx and uses it on Sundays to put the W.I.A. session on that frequency simultaneously with 7146 Kc. He is interested in reports on that band, the vertical should give general coverage.

Reports of t.v. sigs being seen and heard in Mt. Gambier from Melbourne indicate good v.h.f. conditions for the oncoming summer months, so we should see some new records this year, which with our new frequencies (58-60 Mc.) will make the interest grow.

It is the intention during the next few months to "Highlight" a v.h.f. personality and his rig so that in turn we may become more familiar with both "who's-who" and what is doing.

Reg 5QR was visited, and contacted, and arising from such get-together am able to provide an insight into that worthy v.h.f. type and how he does it. His record of achievements on v.h.f. need little comment for they have been recorded elsewhere, and being active on 1, 2, 5 and now 5 mx, has given him plenty of scope for breaking new ground and being in many "firsts." The v.h.f. work is only a part of general activity for the d.c. bands have not been neglected, some very juicy certificates witness that.

The antenna set-up is good—and getting better, the Christmas tree consisting of a 16 el. Colinear on 1, a similar 16 el. on 2, a 4 el. on 5 now being reduced for 5 mx, and finally a G4ZU. All this on the same structure, completely motorised with remote indicator, an ideal set-up. The direction indicator has a great circle map with a balanced needle following the antenna around, so there is no excuse fellows, he will d.f. you for best results.

The tx set-up is flexible in operation, all of them switched for either c.w. or phone, the latter being done via plate and screen on all rigs, by 807s AB1.

For 288 Mc. he uses the usual line-up from the xtal. trebling with an 832 to 96 Mc., then treble again to QQE06/40 and a straight amplifier using another QQE06/40. A very smart set-up this. On 144 Mc. a 6T6 does the trick trebling to an 832 on 144 Mc. thence 829B final with 75w. input, and on 56 Mc. he has an 815 driving an 829B. The outputs of these rigs go via antenna relays to open wire lines to the various sky wires, the ceiling of the shack having a collection of these on their way aft.

The rx assembly follows a pattern also, for example the 288 Mc. xtal front end starting at 7.8 Mc. overtone osc. 6T6 thence double through N76 to 46.8 Mc., a 6J6 lifting this in two stages to 280.8, this beats against a p.p. r.f. 6J6, push push mixer 6J6, thence another 6T6 with some tying of elements as a cath. follower to the appropriate rx allocated for that work. For 2 mx a 6T6 line-up does the trick, but this time the fifth harmonic is used the r.f. set-up being the same as for 288 Mc. The 5 mx converter is within the same chassis.

A very nice operating table and position puts the final touches to a real progressive shack, the current holidays being applied to complete the layout. Oh yes, a most comfortable chair provided for visitors, of whom, as you can guess, he has many.—5ZF.

WESTERN AUSTRALIA

The W.A. V.h.f. Group held another Fox Hunt on the evening of October 20. As usual, the cars started from King's Park and on this occasion, the fox was Ralph 6ZAD, assisted by Stan 6ZAS and John 6ZAG. Congratulations must go to these gents as they apparently put a lot of thought into selecting the spot for hiding the transmitter and only four of the participants found the tx at all. The spot chosen (with fiendish consideration) was alongside the Swan River in Riverton and practically all of the participants went from one side of the river to the other and, by road, this amounted to quite a distance covered. First to track down the fox was Sid 6SJ and his crew. He was followed closely by Don 6HK, whose crew consisted of his fiance, Pat, and Barry ex-6BR, and John 6ZBA. Many sad stories were exchanged and a general post-mortem of the hunt held at the QTH of one of 6ZAD's relations in Applecross. An enjoyable supper was served to all and then all cars headed for home.

On November 17, the Group held a meeting at the QTH of Frank 6CC. In the absence of 6SJ, Rolo 6BO took the chair. A very welcome visitor at the meeting was John 6AF. After the general business had been dispensed with, Tom 6ZAF gave a talk on circuits suitable for Civil Defence rigs and also the merits and demerits of various tubes for same. Then 6ZAD gave a talk on antennae. Some of the antennae discussed were ones used by D.C.A. in D.M.E. equipment and were quite new to some of the members present, certainly to yours truly. Both of these talks were very interesting and thanks are forwarded to the two speakers. 6ZBA.

NEW SOUTH WALES

Owing to late arrival of copy, the New South Wales notes appear on page 18.

OLYPMIC MESSAGE

VK3WI co-operated recently with VK7WI in receiving a message of greeting from the Greek Radio Amateurs in connection with the Olympic Games in Melbourne. The message was transmitted from Mt. Olympus in Greece to VK7WI, operating portable from Mt. Olympus in Tasmania and was later passed on to VK3WI and handed to the Chief Executive Officer, Olympic Games Committee in Melbourne.

The message read as follows:—

"From Attica Amateur Radio Club, SV1SV, to Wireless Institute of Australia, Tasmanian Division, portable VK7WI, on the occasion of the beginning of XVI Olympiad in Melbourne. We, the Greek Radio Amateurs, address our warmest greetings to our Australian colleagues and ask you to transmit the following message to the Committee organising the Olympic Games in Australia. This message is communicated from the place of Olympia where the holy light remains burning since three thousand years ago symbolising the idea of courteous competition in peaceful achievements. 'We wish the knightly spirit and the faith in ideals which expresses the meaning of Olympiad prevail in this magnificent gathering in Melbourne, and in the conscience of world-wide athletic youth'."

It may interest members to know that the Tasmanian Tourist Bureau office in Collins Street, Melbourne, made a small display of this message.

YL CORNER

BY PHYL MONCUR

Our XYL for this month is Murial Sinbeck (Mrs. 3ANS) who is the mother of two small male type harmonics. Murial has one of those bubbling-over sort of personalities with loads of enthusiasm for everything she enters into. As well as looking after her "Ham" and his two little "pork chops" she manages to combine a spare time occupation of giving driving lessons for those desirous of gaining another sort of ticket. Here is her contribution to our column:—

YOICKS, TALLYHO AND DON'T SPARE THE HORSEPOWER

Upon hearing loud bangs and much activity coming from the direction of our family "Bomb" one sunny Sunday morning, I thought, ah! looks like a nice run to the country this afternoon. But, horror of horrors, on investigating, what met my eye but the glove box out upon the ground and various other innards of the car strewn hither and thither.

"What goes on?" I managed to get out when I had finally collected my wits. To which my OM said, with that bright mysterious gleam in his eye we XYLs have learned to dread, "Just wait till you see this, we'll clean 'em all up next time." "Clean who up?" I stammered, "what on earth are you doing?" "Well," he says, "the speaker goes here, the receiver will go there and the power supply will go in the boot, you see, pretty nifty huh?"

Well frankly I didn't see and to cap it all off it seemed there was to be a contraption, looking like a smaller version of my rotary clothes line out front, with some ingenious method of rotating same. This being called the "beam."

"Gosh, fair go," I stormed, "as if it isn't bad enough having to put up with all that Yakitty Yak! here, without taking it with us too." Well, when my OM had finally calmed me down, explanations were carried out and I was given to understand that we were to be in the next "Fox Hunt," though for the life of me I could not see what foxes had to do with it at all. I told my OM as much, whereupon I was addressed with his favourite term of "Listen Log, it's not a real fox at all, but one of the boys in another car and we have to chase him and catch him." "Well," I muttered, "what a way to spend an evening. Chasing some silly clot (my apologies Len) all over town, just to do that. If you ask me, you're all mad."

Of course the work proceeded and at last the big night arrived. We were all set to go. With our supper in the boot, a makeshift bed on the back seat for our two harmonics, my OM frantically making last minute adjustments to the receiver and myself at the wheel, we were off to the starting point. Imagine my surprise when on arrival there I was introduced to other XYLs and YLs who I understood were to be "Navigators" or "Chaffeurs" and all seemed very keen about it all. I preferred to reserve judgment until later in the night.

Eight o'clock came and away went the "Fox" (3LN) and his XYL Phil doing a grand job as scorer. After about ten minutes or so the "Hounds" (that's us) were let loose and off we went. Some in one direction, some in another, but all with antennae gyrating madly and so the "Hunt" was on.

Somewhere around twenty minutes later, when we had been in on the first "kill," I started getting interested and before the night was over I'd caught the bug and was really enjoying it, in spite of myself.

During the course of action we all got somewhat overheated with excitement. In my case as much from the constant barrage of directions that had been fired at me with machine-gun like precision, by my OM. Such things as "turn left two streets up." "Turn right next corner." "Go back a bit." "Not that way Log, I meant back there." Oh my! The harmonics too came in for a bit of chastising. "Quiet in the back there. Look! you'll stay home next time." While I muttered to myself, "if there is a next time."

At last, after a merry chase here and there and finding ourselves in some very queer places, the "Pack" decended on the "Prey" from all sides at the final location of the evening. This being the home of one of the Amateur Fraternity and his XYL who had kindly thrown open their door to us all. Over our suppers of sandwiches and Thermos hot teas, we nattered and tallied up our points which were divided into the miles travelled. The lowest score of them all winning the "Meet."

The OMs had a look at the Host's "Rig" for no "Ham" would be guilty of calling on another without a quick look over the "Shack," and after a hearty round of "Goodnight all, see you next month," we headed our trusty "Steed's" nose for home. My OM, now driving, turned to me and with a very satisfied grin, said, "Well Mum, what about it now, will we be in the next Hunt?" And what did I say? "You bet we will." While from the back seat came a chorus of contented snores from our harmonics.

The Fox Hunts and likewise the Transmitter Hunts have three very keen fans at our QTH and just let our OM try to get out of it. HE'S GOT NO HOPE. 73 Murial Sinbeck

Well YLs and XYLs, we've got this column of ours going pretty well, don't you think? But we've got to keep it going. And that's where you all come in, how about some more contributions.—P.M.

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S.W.L. SECTION*

The Christmas season having passed, now comes the time for making those New Year resolutions. So why not first of all resolve to put pen to paper and tell me a little of YOUR doings. I'd be very pleased indeed to hear from you. So far we have heard from the following VK areas: VK2, 3, 4, 5, 6, and 7, in other words all mainland States and Tasmania. How about you VK1 (A.C.T.) and VK9 boys making yourselves known? Still, I hope you have enjoyed the year just passed and wish you all the best for this one coming. But, please, please do try and help us make a bumper show for our notes from now on.

NEW SOUTH WALES

Key Klicks are audible against the background of motor engines roaring in Coolamon again this month. Our most consistent VK2 correspondent, Stan Abbey, is mobile, but whether with radio gear or not, I don't know. However, I believe that he has not done much listening but instead has been rampaging around showing off his driving skill. Jack Ashley, from the same village (or is it a town boys?) has been experimenting with a converter for 10 mx as his rx has not been functioning too well on that band. Jack is evidently cleaning up the gear preparatory to cleaning up the DX in this new year. I'm also told that 1.m. has been a topic of much interest to a couple of the locals, namely 2AJO and 2ZBJ.

Stan said it was good to learn of another VK2 listener, but that he thinks there must be more. He suggests they may be frightened of seeing their names in print or maybe they can't write. Come on you VK2s and let's hear more from you. What's happened to Bill Davey these days, busy building a t.v. rx or some such small item Bill?

VICTORIA

November Group meeting—This meeting was held on Tuesday, 27th, at the rooms, 191 Queen St., Melbourne; thirteen members being present. Mac Hilliard, from VK5, was welcomed to the premier State to stay. Frank Nolan reported on band conditions, while Michael Ide reported on his activities in general and also gave a brief but most interesting description of his tape recorder (home built of course). Ian Hunt was asked a question as to what happened at the Olympic hidden tx hunt.

It was decided that no meeting will be held for the month of December due to the holidays and that the January meeting would be a free night. So come along and join in our activities as you can be assured of a most interesting time. The Group meets on the last Tuesday evening of each month at 8 p.m. at the address given above.

To conclude the November meeting Ian Hunt gave a talk on antennae and described many of his experiences in that line. The talk was kept elementary for the sake of the younger members and it is hoped that they learnt at least a little from it.

VK1 Correspondence.—That unrelenting cowham-boy, Dave Jenkin, has managed to milk a little more ink from his pen to keep us in the picture of the latest doings in Orbost. He hasn't been hearing much DX, only Ws and KH6s on 7 Mc. c w. and also an I1 on that band. His new rx is now completed except for soldering most of the joints, which up till now have just been twisted. However, despite oscillator trouble he feels that he's now getting somewhere with it at last. I guess it will be really and truly operating by the time this appears in print.

Another very interesting letter was received from Henry Zaal, of Turralgon, in which he tells of the Convention recently held in Leongatha. It appears that Henry was the only s.w.l. and associate present full time at the Convention. Terry Phefley was present for the Saturday night meeting and one of our best known associate members, Phyl (boy scout) Moncur put in an appearance. Thus we associates were represented. Whilst activities were in progress Henry picked up some experience in the tx hunt and says that next time he'll have his own hunting gear.

Bert Stebbing was present at the recent tx hunt and although he was standing right on top of the elusive apparatus still couldn't seem to find it. Ian Hunt salvaged quite a fair length of the antenna from amongst the trees but found himself on the wrong side of the river. He was aghast at one stage when it seemed that a visiting ZL Amateur was in danger of falling into the Yarra River. (No! No notes on the end of the wire, Geoff.) Expecting Len Poynter to appear with a cathode ray tube hanging around his ears soon. He's apparently getting really stuck into this t.v. business.

SOUTH AUSTRALIA

John Campbell writes again this month and lets us into all the secrets from over there. There were no special functions at the last Group meeting, but a new issue of VK5 SWL Cards were received. Len Cragen has obviously been very busy listening as he has heard the following stations recently. 14 Mc.—CT1PK, KJ6BS, VK1IJ, VK9TW, W4ANA, ZL2LY. 21 Mc—BV1US, CE1AH, DU6IV, JA4AH, JZ0PC, KA2KS, KH6BPF, KR6AB, KV4BB, VK9BW, VS2FD, V54BO, Ws, YV, ZL1ST, ZL4BO. 28 Mc GM3DHD, JA9BE, KH6AQJ, OH2OV, OH-5NW, SM5CXF, VE4RO, VE7HB, VK9DB, VS-6BE, W6-7-8-0, ZL1-3-4, ZS4FF, ZS5CU, ZS6GF, 4S7YL.

I have also heard that a Christmas social was to be held for the VK5 Group so it will no doubt be very interesting to find out all about it.

That, however, is all the news for this month. I would like to thank all those who have written showing an interest in these notes during 1956 and assure you that your efforts are very much appreciated. Good wishes to all for this New Year and we hope you have success in your various activities.

* Compiled by Ian J. Hunt, WIA-L3007, 211 St. George's Road, Northcote, N.16, Vic.

FEDERAL, QSL, and DIVISIONAL NOTES

FEDERAL

With the coming of the New Year and the exchange of Season's Greetings, it is also appropriate to thank all who have helped during the Old.

Special thanks are due to the various committees—Magazine, Contest, etc—who have spent hours in their particular duties. Along with these are the members who serve on Traffic Nets, as QSL Officers, Awards Manager, Correspondents, etc. It is the work of these people that makes the Institute function.

To one and all we say, "THANK YOU!"

VISIT OF VK8 PRESIDENT

A visit of some interest was that of N.S.W. Divisional President, Mr. J. Corbin, VK2YC. Jim, who had come over to attend a Civil Defence School at Mt. Macedon, had a few days available in Melbourne during which he was able to meet members of Federal Executive.

Among the variety of subjects discussed was the one which prompted his visit to VK3, the matter of Civil Defence and it is confidently expected that new moves in this field will be forthcoming in the near future.

SUCCESSFUL AMATEUR CANDIDATES

The following is a list of candidates who were successful at the examination for the Amateur Operator's Certificate and Amateur Operator's Limited Certificate held on 9th October, 1956.

New South Wales

N F Wilde, "Wyoming," The Village, Blaynay.
R. H. Palmer, Wee Waa St., Boggabri.
G. F. Barham, 10 Beaufort St., Northmead.
R. S. Lawton, 5 Rogers Ave., Haberfield.
B. W. Steinwede, 66a Anzac Pde., Maroubra Junction
R. Crooker, 11a Arden St., Waverley
B. J Dwyer, 30 Highgate St., Bexley.
A. M. La Macchia, 14 Ruthven St., Bondi.
J Preston, 41 Clanis St., Kingsgrove.
E. F. Matthews, 15 Campbell St., Parramatta.
D. W Rickard, 15 Campbell St., Parramatta.
P B. Card, 17 Watson St., Bondi.
E. A. Phipps, 184 Princes Highway, Sutherland.
J. F. Dulstead, 14 Barbara St., Fairfield.
S. J Brown, 5 Kentwell Ave., Thornleigh.
B. P. Keig, 178 Woolooware Rd., Cronulla.
G. E. McPhee, 102 Wolli St., Kingsgrove.

Victoria

L. R. Schulz, 174 Nelson St., Nhill.
C. W. Wright, 4/76 Maj. 3 NS Trg. Bgde., Puckapunyal
F. D. S. Wescott, 40 Queens Ave., St. Arnaud.
A. F. Elliott, 31 Fenton St., Ascot Vale.
L. C. H. T. Robertson, 6 Currajong Ave., Camberwell.
J. Sapir, 1 Kyeamba Gr., Toorak, S.E.2.
P. E. C. Linden, 723 Toorak Rd., Kooyong, S.E.4.
W. L. Tremawon, 2 Hurlestone St., Prahran.
R. A. Low, 8 Airlie Ave., East Prahran.
T. P. Said, 22 Rosebank Ave., Strathmere.
B. MacRae, 1 Symonds St., East Hawthorn.
R. R. Longworth, C/o. Electric Signals, 19-33 King St., Melbourne.

Queensland

C. W Everdell, Glenleagle, Beaudesert Line.
F. R. Parker, 69 Boundary Rd., South Townsville.
R. C. Britton, 42 Railway Ave., Townsville.
G. C. Jenkins, 25 Adrian St., West Mackay.
G. F Fooley, 35 Aberdeen Ave., Maryborough.
R. D. Grandison, 141, Mt. Crosby.

South Australia

H. Dreimann, 38 Days Rd., Croydon.
R. A. C. Washington, 252 Torrens Rd., Croydon.
H. M. Blythe, 57 Jervois St., Vermont.

Western Australia

T. S. Long, 108 Spencer St., Bunbury.
C. F. Jaeschke, Moora, W.A.
G. E. Maxfield, C/o. 6WA Radio Station, Wagin.

Tasmania

R. W. Harrex, 54 Creek Rd., Newtown.

The above list does not include candidates who, although they failed in the examination for a full certificate, qualified in the subjects for a Limited Certificate. Such candidates are issued with a Limited Certificate on application.

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FEDERAL QSL BUREAU

Under date of 11th October, Beth Hodson writes "I have ceased my activities as VP5FH on Grand Turk Island. In four months of operating I managed just over 1,000 contacts and the last of the cards have been sent out. If any have gone astray, I will be happy to replace on request. My new assignment is now on Mayaguana Island and I hope to be operating from there as a VP7 in a few months. Another VP5 has departed and will presently be operating as a ZD8 from Ascension Island. He is Rod VP5RR." Current QTHs of both mentioned stations are: Seth F. Hodson, VP5FH (ex-W6HNX), R.C.A.-M.T.P., Mayaguana, A.A.F.B., care Patrick A.F.B., Cocoa, Fla., U.S.A. Rod Randolph, VP5RR, R.C.A.-M.T.P., Ascension A.A.F.B., care Patrick A.F.B., Cocoa, Fla. U.S.A.

Lennart Qvarfordh, operator of SM8CSH/MM aboard one of the largest tankers afloat—S.S. Petro-Emperor, 40,000 tons—is often heard on 14 Mc. c.w. from various ocean locations. Lennart hopes to visit VK before long and is looking forward to meeting Hams at the various ports visited. All will be welcome. He uses a 6146 with 65w. and rx is an HQ140X.

QSL traffic through the Federal Bureau took a steep rise during November. Just under 6,000 cards were handled.

Several VK cards have been returned from Morocco by the QSL Manager of the A.A.E.M., Box 2060, Casablanca. The endorsement giving reason for non delivery is "Non Member." Should many countries follow the lead of South Africa, Sweden and Morocco, the QSL Bureaux system is doomed, for stations despatching cards have no knowledge as to whether the addressee station is a member of the national society of his country.

The D.A.R.C. advise the following alterations in the dates of the phone section of the W.A.E.D.C. Contest: First Week-end: 8th December, 1200 hrs., to 9th December, 1956, 2400 G.M.T. Second Week-end 19th January, 1200 hrs., to 20th January, 1957, 2400 G.M.T.

The D.A.R.C. also advise the following results of their 1955 W.A.E.D.C. Contest: C.w.—VKs 3GW 5,359 pts., 2EO 4,218, 2AFA 180, 3CX 420, 5WO 390, 5JT 130, 6RU 273, 6EJ 242. Phone—VKs 2AOU 248 pts., 5WO 42, 9DB 1,962.

—Ray Jones, VK3RJ, Manager.

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FEDERAL AWARDS

W.A.V.K.C.A. AWARD

Certificates have been issued as follows, Mike and Key Club, KA2NY; Takeo Kuwahara, JA1CR; Ivar Svensson, SM7AVA, H. V. C. Randall, ZC8VR; K. Wydder, HB9DS, Otto C. Miller, K6ENX, Naoji Hasegawa, JA3EL; Hisao Shono, JA1AA. Total Certificates issued to date, 48.

—G. Weynton, VK3XU, Awards Manager.

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NEW SOUTH WALES

At the November meeting of the New South Wales Division, Mr. James Sinclair, who is Assistant District Commissioner of the New Guinea Administration, gave a most interesting talk on his work as a Patrol Officer in New Guinea. Many interesting colour slides were shown for the first time to the meeting and all voted it a most enjoyable talk and really "something off the beaten track," as Mr. Sinclair was the first white man to visit many of the areas shown on the slides!

The next big Divisional activity is the annual Hamfest, to be held over the holiday week-end, January 25, 27 and 28. This year at least some of the activities will be held at VK2WI—now in its official location at Quarry Road, Dural. The usual large roll up of city and country members is expected at the Hamfest, which is becoming the main meeting ground for City and Country, offering such a grand opportunity for a State-wide get together prior to any Federal Convention. See you at the Hamfest!

Here's hoping you all had a very Merry Xmas, and may your antenna radiate throughout 1957!

HUNTER BRANCH

The November meeting of the Hunter Branch was held, as usual, at the University of Technology with 13 members in attendance, including John FK8AB. It was announced by the social committee that as no Christmas Party was to be held this year, the cash in hand would be used to purchase presents for all children of members of the Hunter Branch.

Associate Stewart Fairburn was welcomed back after his visit to the United Kingdom, and Stewart entertained members present by showing a large number of transparencies which he had taken during his travels. John FK8AB whose ship was in port for a few weeks, addressed the meeting and gave an account of the activities of FK3 in Noumea.

Members of the Branch made their usual journey to Woy Woy at this time of the year. Those members seen were Norm 2ANA and family, Harold 2AHA and family, Betty XYL of President Bill 2XT, Leo 2QB, Les 2AIR and family, Bill 2ZL, Varley 2SF and family, Chris 2PZ and family, Fred 2AGY, Ducan 2MC and family, Ken 2ANU, Geoff 2VU, Associate Ray James and Associate Bob Bailey and family. In the Scramble, Harold 2AHA took first prize with Geoff 2VU running second. Geoff also took out third prize in the 144 Mc. Hidden Tx Hunt.

President of the Branch, Bill 2XT, has been down to VK3 to see the Games and has now returned with some definite ideas on t.v. rx's. Lionel 2CS has taken an interest in Local Government of late. Rodney 2CN has been on quite frequently until recently when the death of his father caused postponement of Ham activity. Bill W6AL and XYL Carrie visited Ron 2ASJ and Harry 2YL during their trip through Newcastle. Bill W6AL sends 73 to all his Hunter Branch contacts and regrets time did not permit more personal visits.

Bill 2PJ active from his new shack; pleased with results from small rig on his yacht also. At Maitland, Bill 2AMM still busy getting nursery (plants, not kids!) business under way, so no Ham work yet. Associate Sid Daniels now a "back room boy" in Electronics Lab. at Uni. Old timer, Edgar 2MR, heard testing again. Bill 2ZL had trip to "big smoke" and visited junk shops, also the old fox looked up YL Hams! At "Westie," Bob 2AQR has got his rig working again. Johnny 2DZ gets on his pet band of 21 Mc. at times, but t.v. sales, etc., keeping him pretty busy. Alan 2PT moving into home he purchased from Ken 2KG, who has acquired a new one, so they, and also Athol 2ZAE, will be QRT for a while. Jack "The Mayor" Hamilton putting plenty of audio on 2ASJ's carrier as 2nd op.

UPPER HUNTER GROUP

2GV back on the air after a short sojourn in hospital; welcome back Tas and trust that you were handled with care. Had words with 2OS in person, Nev. is having rx difficulties, started a re-build way back and no time since, hi! No news from 2RC, of Pikes Gap—big smoke out in your direction Roy—hope that all's OK. Geoff 2VU mostly on 2 mx, came down to 40 mx for the Woy Woy Scramble and ran second to the old veteran, 2AHA, nice going Geoff, we'll make it yet. 2ANU working 80 mx when conditions are good and 2 mx is dead. Had the pleasure of a visit from 2ZCB, of Scone, during the month, have tested the 2 mx path from Muscle Creek to Scone Les, it is f.b. so go to it. T.v. signals have been received in Singleton on 200 Mc. during the month—watch out for t.v.i. Alec. 2VU and 2JZ will soon have their troubles, hi!

Hope you all had a Merry Xmas and have a Prosperous New Year, with great advances in Amateur Radio for 1957.

SOUTH WESTERN ZONE

Congrats to Don 2RS for his fine effort in the R.D. Contest, very good work Don. Les 2ZBJ, at Uranquinty, has been advised of a shift to Ballarat, so once again this zone loses a very active v.h.f. man. All the very best in your move Les from all in the zone.

Stan Abbey and Jock Ashley, the two Coolamon Associates, are still slugging it out on their way to sitting for the ticket. Hope to see as many of the zone who can possibly get down to the Headquarters Hamfest at the end of January. Roll up chaps and show Sydney that we can also travel.

Hope all zone members and associates had a very Merry Xmas and have a Bright and Prosperous New Year. On behalf of this zone we extend New Year Greetings to all Australia, not forgetting "Amateur Radio."

SILENT KEY

It is with deep regret that we record the passing of:—

VK4YA—Bill Young.

VICTORIA

The December general meeting was family night and the best attended general meeting for the whole year. President Gordon 3TF arranged with Father Xmas to come along with a gift for all the kiddies and we were shown some very excellent films. Two documentaries, kindly arranged by Roth 3BG, in conjunction with the Commonwealth Oil Refineries, also two very amusing comedies for the children.

Visitors included Senator Manuel Willis (XE2JK), of the Mexican Delegation; Chester W0PBR and Bob YA1AA. Senator Willis, XE2JK, made a presentation to the Victorian Division of a pennant from the Radio League of Mexico, and the President, Gordon 3TF, then presented XE2JK with a badge of the Wireless Institute of Australia as a momento of his visit to VK3.

Ron Higginbotham, 3RN, was presented with the Gadsden Trophy for his long years of service and untiring efforts in connection with the publication of "Amateur Radio." A very great honour, but most richly deserved.

The following new members were welcomed to the Institute: Full members—Messrs. R. A. Smith, 3QP; E. R. Kelly, 3ZAK; J Sepir, 3ZEE. Associates—Messrs. C. E. Schneider, D. G. Baulch, D. J Dunlop. Junior Associates—Messrs. R. A. Eapie, D. N. Holmes, R. G. Tacey.

At the conclusion of a very jolly evening, supper was served and we must congratulate our President's XYL, Nina, who did the majority of the cooking, also Marg (Mrs. 3ALY) and our Administrative Secretary (Mrs. May) who both lent her a hand.

There will be no general meeting in January, the next general meeting will be held on February 6, 1957. The Victorian Division office in Queen Street will be closed for three weeks from 18th January to 10th February while the Administrative Secretary, Mrs. May, takes her annual holidays.

Owing to the Olympics, the Bi-Monthly All-Band Scramble was not held in December, but the next Scramble will be held on Monday, 4th February, 1957.

We had an Interstate visitor of note here in VK3 recently in Jim Corbin, 2YC, President of the VK2 Division. Jim was over here for the Civil Defence Emergency School held at Macedon and many VK3s had great pleasure in meeting Jim.

Our Technical Editor, Ken 3AFJ, hasn't been at all well lately, he's got a nasty pain in his tummy, but manages to carry on with his job cheerfully. We all hope your trouble clears up soon Ken.

THE OLYMPIC DINNER

The Annual W.I.A. Dinner which, this year, was known as the Olympic Dinner was an outstanding success. There were 80 present and the guests included Senator Hannan, who supported the toast to the Wireless Institute of Australia and made an interesting statement in regard to the remission of sales tax on equipment used by Amateurs. Other guests included representatives of the Postmaster General's Department in Messrs. Pearson, Punch and Dobbin, and also Mr. McDonald of the Australian Broadcasting Control Board. International and Interstate Amateurs here in Melbourne for the Olympic Games included Aramas OH2NB, Chester W0PBR, Les ZM6AS, Hilton ZL2MN, Jim ZL2ABR, Bill VK2XT and VK4GA. Chester W0PBR had with him his pocket sized personal broadcast portable receiver which interested everyone. Its dimensions were 4" x 6" x 1½" completely transistorised and gives 600 hours life from two tiny batteries 1¼" long.

There were also representatives of the Advertising Trade and Mr. Bert Pringle, of A.W.A., responded on their behalf and complimented the Wireless Institute on the fine work it has done over the years. Among the VK3s we were pleased to see some of our country members and several of our real old timers.

The Dinner was held at the Prince of Wales Hotel, St. Kilda, and was very capably organised by Doug 3DU. The organising of the seating arrangement was particularly good; in this Doug was assisted by his XYL Audrey who made out the place cards which had the Amateurs' names and call signs and the guests' names printed on them and these they pinned to their lapel and served as an introduction to one another. Audrey also made out a very handy directory card showing the seating arrangement which was placed at the entrance to the dining hall and helped considerably in getting everyone seated quite quickly.

Congratulations and thanks are extended to Doug 3DU for the success of this important event.

80 METRE TRANSMITTER HUNT

It was a lovely fine, pleasant, sunny Sunday afternoon and our VK3 Amateurs and their families turned up in full force to greet our Olympic visitors. There were 120 attended the hunt and among the Olympic visitors were Bob YA1AA from Afghanistan, Pete ZL2ABJ and Geoff ZL2BK from New Zealand, Evan VK4EF from Queensland, Gil VK7-SWL from Tasmania and several of our VK3 country Amateurs.

Len 3LN hid the tx and it was located at Deep Rock Swimming Pool in the National Park at Studley Park. The aerial he used was five circles extending over a quarter mile area, feed line was a co-ax feed line which was taken from an over-hanging tree through the water and underground to a position 30 ft. from the river where the tx, batteries and keying motor were buried under ground.

The first one to locate the tx, the winner, was Jack 3V2, who arriving in haste at the location and hot on the scent, jumped out of his car armed with grid dipper, then turned back with the remark, "better turn the gear off," and then proceeded to track down the tx. A quarter of an hour later someone called out, "Jack, you've left the engine of your car running." Well, he did remember to turn the most important thing (the rx) off, anyway. Reg 3ZAD was second and Eric 3ADU was third.

In true Olympic style they stood on a dias with their heads through Olympic circles and were presented with tx hunt type, gold, silver and bronze medals cut out of plywood and suitably painted and endorsed by 3LN The

presentation was made by one of our guests of honour, Bob YA1AA, with Mrs. 3LN doing the boy scout act, complete with scout hat and scarf and carrying the medals on a cushion.

The outing was a grand get-together and finished with a picnic tea on a grassy bank in a very picturesque part of our Yarra River.

The next tx hunt will be held during February, when the date is arranged it will be advertised over 3WI Sunday morning broadcast. Jack 3VZ, the winner, will be hiding the tx.

SOUTH WESTERN ZONE

The zone hasn't been very active since the last Convention held in Ballarat. Still only the same old few holding things together, so come on chaps and rally yourselves now that Xmas is over as it is very good to hear that we have retained the Kinnear Trophy for another year.

From the zone we thank all who attended the State Convention to represent our zone. The zone hook-up has been badly attended on 7 Mc. at 10 o'clock each Sunday since the Convention. 3XI and 3JA come on and there isn't anyone else, so how about cranking up those tx's chaps? Bertie 3VA seems to be bashing Inigo Case's (3ACE) ears, of Birchip; never mind Clyde, Bert has also had a visit from John 3JX and Keith 3VI, but only to talk all about hi fi.

John 3ABJ is still getting a few minutes for radio. Harry 3XI is not very active at present as he is constructing a caravan so it looks as though he might finish up with a GO9 rig built in same. Wal 3UT, from the Cacti country, isn't very active at present either. Norm 3EQ is busy building a beam for t.v. which will be taking him from one type of screen to another. Jack 3JA hasn't been very active owing to illness in the family.

If anyone has any photos of the last Convention held at Ballarat and could spare same, please send same to Bill Wines, 46 Crawley St., Warrnambool. Well chaps as it is now 1957, I wish all zone members a happy and prosperous New Year and may all that you wish for, come your way.

NORTH EASTERN ZONE

As my spies have all developed glass wrists and have gone to the Olympic Games, there is no zone activity to write about. On behalf of the zone, I would like to wish everyone the cheers of the season and best of DX for 1957.

CENTRAL WESTERN ZONE

By the time these notes are being read Chas 3IB will be on his way down to the cold regions of the South Pole again. He has been appointed Radio Supervisor of the new base to be established on Vestfold Hills, this location is approx. 400 miles east of the already well known Mawson Base. We all wish Chas a happy trip and stay on this new venture, guess that it will not be long, after they get settled, when we will hear Chas on the air relating to us the happenings and experiences on this new Base.

Recently a Hobbies Exhibition was held in Stawell and Keith 3AKP went to quite a lot of trouble in installing an Amateur Station at this "do". It was an outstanding success and we must thank Keith for all the work he put into this. Jim 3DP, Allan 3HL and your scribe helped out with some operating. Also thanks to the stations we worked during operations; there seemed to be someone there to help us out all the time.

GEELONG AMATEUR RADIO CLUB

At a recent meeting, Bill 3BU entertained members at his new QTH and gave those present a fine demonstration of t.v. application and noise and tx interference. Various types of antennae were used and a low powered tx alongside showed what type of t.v.i. could be expected. Later the same evening many films of Conventions and events around Geelong were shown on 8 and 16 mm. film. To conclude a most interesting evening Mrs. Brownbill regaled those present with a fine repast.

The warmer weather is bringing out the mobile and d.f. equipment. Tx hunts on 80 mx are the rage here and Ted 3AEH hid the tx near Ocean Grove. His location was well camouflaged—however the place getters were as follows: 1st, Kevin Mills; 2nd, Vic Clark; 3rd, R. Heighway. Other hunts were held during the afternoon with excellent results.

Bob 3IC had us down to his shack and we were royally welcomed and treated. The contents of Bob's shack were eagerly studied; the band was rather noisy for contacts but we saw his BC348 in operation. Bob's sister saw to our inner wants and we yarned for so long that the night slipped away. Many thanks to Bob and his sister for their hospitality.

The usual Xmas Party was held in the Club rooms where we renewed friendship with old acquaintances. We all send our best wishes for the New Year.

FIFTY-SIX MEGACYCLES AND ABOVE

(Continued from Page 13)

NEW SOUTH WALES

Popularity of 2 mx is greatly enhanced by the growing activity of more and more Hams and newcomers heard around the dial almost every evening now. The monthly meetings of the Group are always well attended and all members are very keen and willing to assist one another in every way. The Committee has in mind to instruct on such matters as Constructional Practices for V.h.f., Grid Dip Oscillators, Beam Antennae, I.f. Channels, Transmitters, Beam Feeders, and the like, and it is felt that members of the Group will all enjoy as well as benefit from the instructions which are due to commence early this year.

The regular monthly Fox Hunt-Hidden Tx Hunt was held on 5th Dec. from 2005 hrs. to 2135 hrs. when Dave 2AWZ operated his portable/mobile gear hidden at Sugar Loaf Point. About eight or nine cars took part and assembled at Ryde and then took off in various directions for the hunt. Scores were: 1st 2ANF, 50 minutes; 2nd, 2ZCF, 70 min.; 3rd, 2AFM, 85 min. Others were directed to the spot by Dave.

From the Northern Area we have heard that Roy 2HQ has been putting in a good test signal and has been worked by 2VU and 2ANU. Bob 2ARG has been worked by 2VU and heard by 2ANU. On Nov. 17 tests were carried out between Tamworth and Sydney, 2APG/P operating on 2 mx from 2ATD's QTH was heard by 2HO, 2HL, 2APQ, also 2VU and 2ANU at good strength, c.w. and phone being used. Les 2ZCB, of Scone, called on 2ANU to see what makes things tick, and now the path between Muscle Creek and Scone is S9 both ways, using 3 over 3 beam and quarter wave vertical on vehicle. Both 2ANU and 2VU came 3rd in Tx Hunt at Woy Woy—road blocked, so had to take off on foot, hi!

Activity on the move in Tamworth and should greatly expand with the formation of the Radio and Electronics Club, which it is believed has a membership of twenty and still growing. T.v. tests have taken up most of 2VU's time of late —mainly in the test of antennae—and it is interesting to note that the 16 element phased array runs rings around all others. 2ZBK, in Blayney, has been heard in Sydney at S9.

Well chaps, I now wish you all a Happy New Year with plenty of DX on 2 mx.—2AFM.

OBITUARY

BILL YOUNG, VK4YA

During November, Bill Young, VK4YA, passed away and with his passing the Queensland Division lost an untiring worker for the W.I.A. Bill held the job of Secretary of that Division through the period when activity was almost at a standstill and had it not been for the hard work of Bill and the other chaps on Council the W.I.A. Queensland Division might have folded up.

In 1955 Bill found his health failing, but kept on with the job to the best of his ability. On medical advice he had to give up the job and, shortly after, he suffered a serious stroke which almost took him from us then.

He had a partial recovery but was completely invalided and went to Ipswich to live with his brother. As his health improved, he fired up his rig again and though we could not hear him here in Brisbane on 80 metres unless skip was very short, we could hear the DX replying to his calls.

Ham Radio did wonders for him in the last months of his life as an occupational therapy. Bill had been a Ham for thirty years and the ranks of Amateurs have lost an ardent follower.

W.I.A. members and "Amateur Radio" extend to his relatives their deepest sympathy.

QUEENSLAND

BRISBANE AND DISTRICT

At the end of November the Junior Chamber of Commerce held a Hobbies Show at the City Hall and the W.I.A. was asked to take part in it with a working Ham Station. A working "bee" got an exhibit into shape and things went off wonderfully with a good attendance of both Hams and the general public. The Exhibition was part of the "Junior Chamber's" drive against juvenile delinquency by trying to interest the younger generation in a hobby of some sort, though one bright character said the Ham Radio exhibit was an excellent way to encourage youths to become delinquents, after all "you don't have to be mad to be a Ham, but it helps." Peter Evans, the President of the Junior Chamber, agreed to have a special QSL card printed for VK4WI for the stations which contacted the exhibition station. The show gave the public a wonderful idea of how Amateur Radio worked and with a two metre link between the City Hall and 4TN's shack, we were able to use both his tx and rx for plenty of DX contacts.

A welcome visitor to Brisbane during November and December was Arthur 4FE, that "beachcomber" from beautiful Thursday Island. Arthur took his turn on the roster of operators at the Hobbies Show and attended the Christmas "Get-together" at Anzac House. Arthur is trying very hard to have Thursday Island declared a separate country for DX C.C. listings so that he can have an open slather with DX. Why, he even tried to have Magnetic Island, near Townsville, declared a separate country so that he could conduct a "DX-pedition" over there each Sunday when he was in residence at Townsville. We're afraid his spell on Heard Island spoiled him and made him discontented.

Our congratulations to two Associate Members who were successful with the October examinations: Cliff Jenkins, of Macksy, passed the A.O.C.P. and Cress Everdell, of Gleneagle, passed the L.A.O.C.P. Unfortunately, we have lost Cliff Jenkins to the VK2 Division as he has shifted to Moree to take up a position on the new broadcast station there.

Another "old-timer" (in Ham Radio, not in age) has come back into the W.I.A. after getting the urge to become active again. He is Jack Young, 4JY, who got his ticket back in 1930 at the same examination that Vince 4VJ got his. Welcome back, Jack!

Well we will take this opportunity to wish everyone the very best of luck for 1957 and hope that the New Year brings everything you wish yourselves.

MARYBOROUGH

Pride of place this month to Grahame Pooley, who passed his A.O.C.P. Grahame has a converted AT5 almost ready, will modulate with 807s. First antenna will be an extended double zepp. A 12 tube rx also to be built.

4CB only on 3 mx so far, 10 mx quad not yet on the tower. 4BG has tower ready to hoist and plans a G4ZU beam in place of the old three element 14 Mc. job. 4AI still silent. Alan had a 40 ft. mast snap in a recent blow.

TOWNSVILLE

I missed the last meeting for the year, held at Graham's place on 29/11/56, due to the fact that my relief went sick and so I had to turn up for toil instead of ragchewing with the boys. Two of the club students were successful in gaining full certificates at the last A.O.C.P. examination. Good wishes to Bill and Bob and hope you are soon on the air. You can always beg, borrow, or steal off the gang to get the rig on the air.

Have to report a visit to the far north by George 2AUR, of cubicle quad fame, but unable to get any converts. He failed to sign the pledge while here, looking for the shack that runs the full-gallon on tap. The club hopes to have a get-together shortly, as soon as the Secretary is well enough to stand the pace. No doubt Eddie is well on the road to recovery. Vern 4LK called in on a quick visit to Townsville. John 4DK has tower erected but so far no beam; too busy no doubt with the local polio scare. Allan 4BE very quiet since his return from the south. Ted 4EJ put in the week-end chasing the finny tribe with new powered dory. Never see or taste any fish here Ted. John 4DD still believes in 10mx band and no other despite an almost silence after dark.

Howard 4HF put in an appearance on the ragchew on 40 mx; come in more often, the mat has not been taken in yet. 9BS failed at the last moment to arrive despite the warm welcome that awaited him. His many friends are disappointed that he failed to get past 4NG, at Rockhampton. No skeds with Mareeba lately so no news of the boys in the far north. Owen 4OV, of the far west, been absent from the band on Sunday mornings. Many boys calling you Owen; have a spell from work—relax and join the group. Bright New Year loaded with DX for all.

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SOUTH AUSTRALIA

Our last get-together consisted of the ever popular "tender night". Yes, there were various "tenders," some not successful, but by and large not an unsuccessful night, kicked along by Dougal 5BY and Norm.

They work hard those two, in a good cause, why Dougal even took his pipe out to light it on five different occasions and forgot to apply the match!! Ever call CQ and forget to throw the main switch? Same feeling I should say.

At these particular programmes the general business gets short shift, so apart from formal minute approval, visitor welcomes and QSL card distribution the only item that did get a hearing was the President's request, that anyone who has items for agenda for the forthcoming Federal Conference should submit same to the Divisional Council in writing for consideration, etc.

The A.O.C.P. Class progress was reported and the very healthy number now attending has greatly encouraged that "stout" type indeed not only him for it's a healthy sign that so many are entering the fold, we want new blood continuously, so we hope those now studying make the grade, stick to it chaps, it's well worth the effort you are now applying. Listen to the W.I.A. sessions each Sunday at 1000 hrs. (7148 Kc.) and you will be kept up to date with progress and activities. That session is for you new-comers as well as the old timers. Norm will keep you posted on announcements re the class, for new accommodation is necessary.

We had our final glimpse and handshake with two very good friends who are now on the high seas returning to G land, namely, Bob Langfield and John Torr. They both stated they had thoroughly enjoyed their honorary membership and the fellowship it provided, appreciated the hospitality granted by many here, and expressed a desire to return. Thanks Bob and John, we liked your company and hope to see you again some day, and in the meantime hope to work you from home QTHs.

It was bad luck for them that they both obtained VK5 licences a week before sailing and struck the worst conditions on 7 Mc. that we have had for ages. Better luck next time.

The tribander beam has now settled down fine and does all of which it is claimed capable. Don't be mislead by what it does on 20, it's good there, but really hot on 15 and 10 mx where its design is centred. For the benefit of those interested, the whole dope has been consolidated and in the hands of a good "copying" department and will be made available to those asking. So, if you want a beam on each of those bands and don't have the space for full sized jobs or the inclination to stack them, this condensed version is the answer. (Hope to receive the details for an article.—Ed.) Have had quite a few visitors, some with cameras who have taken details, so the information is now fairly general.

Sorry the general country sections, namely South East and North West, are missing this month, but due to early lodging of copy, my scouts from those areas have not made it in time, so we will double up next month for them.

Have not heard our Pirie friend of late, do not know if he is still building t.v. equipment, or are you "looking" Ern? Let's hear from you and report progress.

Sunday mornings of late have not been quite so good, the 40 mx skip has been a bit long, but in spite of that Chas 5ON is heard well from his new QTH, Luke 5LL pounds in fairly well, Athol 5LQ cannot be left out (he is at the lower end of the drain) for he patiently awaits his turn, your air manners are commendable old chap, even if you do not appreicate Les 5AX on n.b.f.m. Dave 5BF—who was at the last meeting by the way—bobs up to report activities his way. Wal 5DF is still flying model planes, but finds time to tune up on 40 mx now and again. Col 5RO is making a name for himself on 15 mx and doing real well on rare DX. a rotating dipole does the trick and with very modest power too.

Amongst those not heard recently are Joe 5JO, Frank 5MZ, Perce 5FH, Ron 5WC, Rex 5KV; what's happened fellows? Are you all on 10 mx these days?

Hope you all had a Happy Christmas and that you find the sunspots to your liking for 1957.

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TASMANIA

NORTHERN ZONE

My scribes around town have informed me that we are going to lose 7GM and 7ZAW in the near future. I feel sure that the Northern Zone members will sadly miss them both, if the rumour is true. Bad show for the zone Gordon and Perc, but our good wishes go with you both wherever you both go. Please don't forget us all. Believe Henry was down Latrobe way in November, but missed out seeing 7JO, who was away with the gang on Mount Olympus in Tassy chasing five circles with the Amateurs in Greece: must have been cold up there Jim, or had you an extra bottle of Scotch or Rum with you?

Max 7CA informed me that t.v. signals have been received on Mount Arthur at a strength of 40 m.v., may not sound much at present, but it is a pointer to things to come in the future, so we may have t.v. sooner than we expect.

Our first hidden tx hunt in November got off to a bad start. Only two cars took part with rx's, Ray 7RK and Perc. 7ZAW with 7PF and his XYL. Henry turned up at the start with the Hillman but had to retire home to his XYL with the 'flu. Max 7CA started out from his QTH but was dogged by bad luck. Climbing one of our many hills, his car leads caught fire; after minor repairs started chasing the signal, then the vibrator supply gave up the ghost. Better luck next time Max.

By the time these notes appear in print, most of us will have recovered from the after effect of excess Christmas pudding and the trimmings that generally follows, which reminds me that I forgot in the last issue—"A very merry Christmas, Prosperous New Year, and lots of good DX."

NORTH WESTERN ZONE

During November I went back to the old QTH at Queenstown to relieve Leon 7JP for his annual leave. Saw the 7JP antenna farm on the hill as mentioned last month. Leon has a cubical quad outside the window, which is conveniently turned by two pieces of cord. There is also an extended lazy H which is conveniently supported by two nearby hills. Have just had a report from Denis 7DR by s.s.b. land line, about the December meeting for the North Western Zone. The Associates apparently turned up in their usual numbers, among them being Ken Hancock, Athol Locket and Max Ives. How's that A.O.C.P. course going Max? Johnny Lee was also present during the early part of the evening, but disappeared, being found later on the top shelf. A funny place to be, me thinks. Possible Associates from Burnie, David Searl and Gerry Wells, present too. The usual welcome to you chaps.

George 7XL was in attendance for this meeting. What's this George, no audience for your music, or did the locale of the meeting bring you out? Understand the meeting decided to hold a hidden Tx Hunt in February, 1957, on 80 mx. Discussion also took place on a Constitution for the zone, a copy having been obtained from Hobart. Another auction sale took place, again the hammer of Ted 7EJ. That's another £5 for kitty.

Roy 7RN liberated the moths and now has a mod. checker. Fine thing, Roy. Guess I'll be right to borrow same anytime? Have had speech with one of our West Coast Associates, Rev. Lin Brehant since my arrival here. Lin is very keen and is considering building a converter or two, to replace the dual waver. Any old, bent, converters about for passing on? Harry 7BR, the Southern scribe, heard also on s.s.b. land line during this week, but appeared very busy. Thanks for remarks on prolific style Harry.

All the best for the New Year from the Wild West Coast.

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

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SELL (or swap for good Communications Receiver): BC221 Freq. Meter, with Calibration Book and Xtal. A. Cork, Bank St., Molong, N.S.W.

SELL Transmitter 100w., band switching 10-20-40-80 mx, 813 final, 830B modulators, v.f.o. or xtal control, fully metered with 15 meters, 4-866 h.t. rectifiers, complete H/D 24/30v. relay supply, whole tx built on steel rack and enclosed steel cabinet, cost £200, sacrifice £75 cash. Tx 6 and 2 mx, xtal control, QQE06/40 final complete power supplies and hot 2 mx rx, metered and enclosed metal cabinet, £50. Tx Bendix TA12D and RA10FA rx, £20 pair. IFF986, £3. V.h.f. field strength rx and power supply, £7/10/-. Oscilloscope power supply, 1900v., £5. Vibrator supply, £2. Kingsley 6 mx converter, 50/-. Transformer 2000/2000v. high current, £5. Type S power supply, new condition, less rectifiers, £15. Lot of other gear. 69 Park Rd., Middle Park, Vic. LA 7037, ML 9116.

SELL: 10 Tube 50 Mc. Receiver with power supply (easily converted to 56 Mc.), £25. 10 Tube Receiver for 144 Mc., less power supply, £17. M. Hilliard, 57 Gardenia St., Blackburn, Vic. WX 2498.

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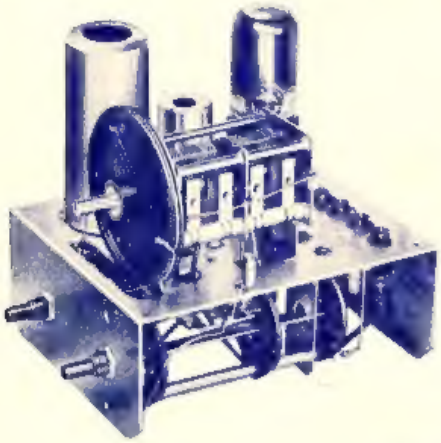

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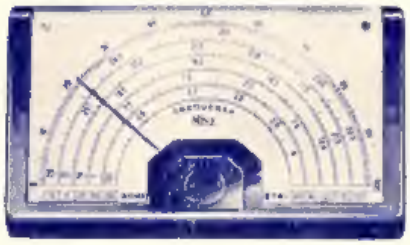

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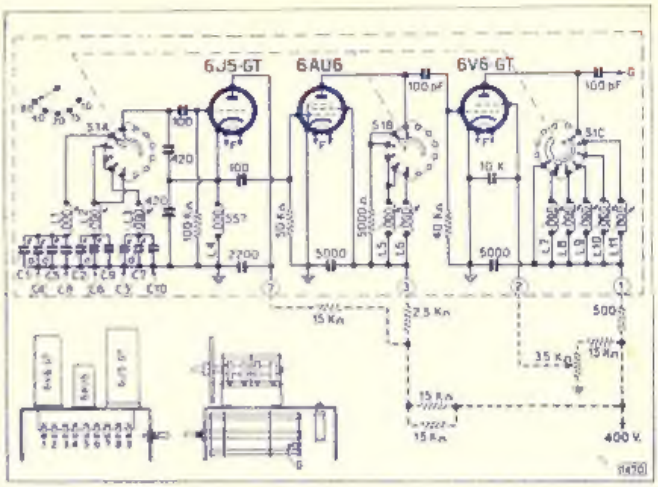

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